

EXAMINING THE EFFECTS OF STUDENT AND TEACHER ABSENCE
ON ELEMENTARY STUDENT READING PROFICIENCY

by

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ABSTRACT

Prior research indicates a relationship between chronic student absenteeism and chronic teacher absenteeism with regard to student achievement. However, those two potential predictors are rarely explored in the same study. In addition, building or district absence rates are often utilized instead of examining individual absences which can lead to an underestimation of the results. Using attachment theory to guide the conceptual framework and formulation of research questions, possible predictors of K-3 elementary student reading achievement were explored. The factors in this study included gender, ethnicity, socioeconomic status, student absence (both annual and cumulative), and teacher absence (both annual and cumulative). One-Way ANOVA results indicated that differing levels of teacher absence had no effect on spring reading scores at any grade level. Sequential regression analyses indicated that socioeconomic status was a significant predictor of reading scores at all grade levels and that cumulative student absences were a significant predictor of Iowa Assessment reading scores in third grade. The results of this study provide information on the connection among variables and suggestions on how to positively impact student attendance and performance, especially for students living in poverty.

CHAPTER 1

INTRODUCTION

“Because it is not measured, chronic absenteeism is not acted upon. Like bacteria in a hospital, chronic absenteeism can wreak havoc long before it is discovered.... That havoc may have already undermined school reform efforts of the past quarter century and negated the positive impact of future efforts.” (p. 3)

*Balfanz & Byrnes (2012)
The Importance of Being in School*

Chronic absenteeism in education – missing 10 percent or more of the school year -- is a pervasive and often overlooked problem in our nation’s schools. The Federal *No Child Left Behind’s* reauthorization of the *Elementary and Secondary Education Act* (ESEA) does not require the reporting of chronic absence. To meet the required reporting mandates with regard to accountability measures – the other being achievement test data in math and reading for grades 3-8 -- many schools choose instead to track average daily attendance rates at the building level. However, this data can be misleading and mask significant levels of individual student chronic absenteeism that should be examined and reported.

Researchers for the National Center for Children in Poverty (NCCP) assert that almost 14% of kindergarten students, 12% of first-grade students, and nearly 11% of third-grade students are at-risk absentees, missing between 12-18 days each year, with children from low-income families at higher risk (Romero & Lee, 2007). According to Chang and Romero (2008):

At the core of the school improvement and education reform is an assumption so widely understood that it is rarely invoked: students have to be present and engaged in order to learn. That is why the discovery that thousands of our youngest students are academically at-risk because of extended absences when they first embark upon their school careers is as remarkable as it is consequential. (p. 3)

Chronic absenteeism in kindergarten leads to performing at the lowest levels in first grade and is especially detrimental to Latino students' reading performance in first grade. If a student is both poor and chronically absent in kindergarten, it is predicted that they will have the lowest performance in both reading and math in fifth grade. While it is a nation-wide problem, some locations in the country are more affected by chronic absenteeism such as urban areas in the Mid-Atlantic and the Northeast that have higher percentages of Black and Latino students residing in high poverty areas (Chang & Romero, 2008).

Students who are chronically absent are at increased risk of poor academic performance, behavioral issues, and dropping out of high school. Chronic absenteeism can also have pronounced negative effects on students living in poverty and significantly reduce the likelihood that students will pursue post-secondary educational opportunities (Balfanz & Byrnes, 2012; Chang & Romero, 2012; Ready, 2010; Sheldon & Epstein, 2004).

According to Chang and Romero (2008):

School attendance reflects the degree to which schools, communities and families adequately address the needs of young children. Attendance is higher when schools provide a rich, engaging learning experience, have stable, experienced and skilled teachers and actively engage parents in their children's education. (p. 4)

While chronic absenteeism is normally a term related to student absence, it is also increasingly being applied to teacher absence which has suddenly found itself more in the spotlight with regard to its potential impact on student outcomes. During the 2009-10 school year, approximately 36% of the nation's teachers were absent more than 10 days. Schools serving high proportion of African American and Latino students reported increased teacher absence rates (Miller, 2012). Recent findings indicated that ten additional days of teacher

absence was associated with a 1.7% of a standard deviation decrease in math and a 0.9% standard deviation decrease in reading (Clotfelter, Ladd, & Vigdor, 2009).

Teacher absences...disrupt the routines and relationships that support learning. A teacher may need to reallocate instructional time to review classroom rules and procedures upon returning from an absence, perhaps in addition to having to perform a full re-teaching of the lesson that was meant to occur on the day of the absence. Teachers may also have to deal with emotional fallout. Very young students or those with few examples of adult stability in their lives may need some type of reassurance that their teachers' absences are not a sign of indifference.... (Miller, 2008, p. 4)

In this era of increased accountability driven by *No Child Left Behind* that addresses sanctions low-performing schools with increasingly punitive measures for each year of failing to meet Adequate Yearly Progress, districts are scrambling to find the unique combination of curriculum, instruction, and assessment that produces higher student outcomes. However, one area of education that has received little attention until recently is the high absence rate of some classroom teachers and how those days that students spend with substitute teachers affect their academic performance, emotional stability, and desire to attend school. According to Bergin and Bergin (2009), "Secure teacher-student relationships may seem like a low priority in an era of high stakes testing. However, children's socioemotional well-being is linked to achievement. Higher quality education is the result of healthy relationships from preschool to high school" (p. 162). However, if a teacher is frequently absent from the classroom and students are subjected to a myriad of substitute teachers, it becomes difficult – if not impossible – for students and teachers to form a trusting, secure relationship and could conceivably lead to increased student absence.

The financial cost of having 5.3% of teachers absent in the United States on any given day is staggering, accounting for \$4 billion in substitute and administrative costs annually (Miller, 2008). However, limited attention has been devoted to how teacher absences affect students' emotional wellbeing and ultimately impact academic outcomes – especially at the elementary level. Teacher attendance issues can be particularly detrimental to closing the achievement gap in lower-performing schools that typically are populated with students from lower socioeconomic levels (Imants & Van Zoelen, 1995) who may have a difficult time forming relationships with caregivers (Bergin & Bergin, 2009; O'Connor & McCartney, 2007). According to Cornelius-White (2007), “Secure and reciprocal attachments are important for students to engage in their relationships with teachers, peers, and subject matter and develop healthy self-concepts and senses of well-being” (p. 115).

Statement of the Problem

Student absenteeism and its adverse affect on achievement have been well-documented (Baxter, Royer, Hardin, Guinn, & Devlin, 2011; Balfanz & Byrnes, 2012; Chang & Romero, 2012; Gottfried, 2010; Miller, 2008; Parks & Kanyongo, 2012; Ready, 2010; Sheldon & Epstein, 2004; Spradlin, Cierniak, Shi, & Chen, 2012). However, until recently, teacher attendance has not received the same scrutiny. National teacher attendance data at the building level were not collected in a systematic manner until 2009. With 37% of the teachers absent for 10 or more days for non-school-related reasons in the most recent sample (Office for Civil Rights, 2012), it is imperative that researchers examine the impact of this high rate of employee absenteeism on those who are most affected – the students.

While teacher absenteeism and its negative effect on student achievement is increasingly becoming a focus of researchers (Brouillette, 2012; Clay, 2007; Clotfelter et al., 2009; Miller,

2008; Tingle et al., 2012; Woods & Montagno, 1997), there is a void in the literature with regard to the effect of varying levels of teacher absence on reading outcomes at each grade level. There is also a void with respect to the combined effect of individual student and teacher absences at the elementary level – both annual and cumulative. “Continued investigation matching teachers and students and tracking teacher attendance and student achievement over time is...clearly warranted” (Tingle et al., 2012, p. 378).

Purpose

The purpose of this study is to examine the effects of elementary student and teacher absences on reading achievement in a Midwestern school district. Utilizing attachment theory to guide the conceptual framework and formulation of research questions, this study will explore the relationship between varying levels of student and teacher absences and student reading proficiency at the kindergarten through third-grade levels as well as examine the impact of cumulative student and teacher absences on third-grade student outcomes in reading. Understanding factors that influence reading outcomes may inform teachers and potentially guide school leaders and policymakers to develop strategies and policies that will lessen the negative effects of both student teacher absences on student reading performance.

Research Questions

The following research questions will guide this study.

1. What are the demographic characteristics of the participants in the study?
2. Is there a statistically significant difference between the number of days a teacher is absent and a student’s reading proficiency in a) kindergarten, b) first grade, c) second grade, and d) third grade?

3. To what extent do a student's gender, socioeconomic status, ethnicity, absences, and teacher absences predict reading proficiency at a) kindergarten, b) first grade, c) second grade, and d) third grade?
4. To what extent do a student's gender, socioeconomic status, ethnicity, cumulative absences, and cumulative teacher absences predict reading proficiency at third grade?

Theoretical Framework

“Evidence suggests that secure teacher-student relationships predict greater knowledge, higher test scores, greater academic motivation, and fewer retentions or special education referrals than insecure teacher-student relationships.... This raises the important question of how teachers can develop more secure relationships with their students.” (Bergin & Bergin, 2009, p. 154)

This study will be grounded in attachment theory that was developed primarily as an ethological approach to explain personality development and the attachment relationships formed between infants and their primary caregiver (Bowlby, 1969/1982). Empirical evidence for attachment theory was provided by utilizing the strange situation procedure to divide infants into three categories: (1) secure, where mothers are considered a secure base from which infants explore but later seek contact; (2) resistant, where mothers are not considered a secure base, causing infants to become angry or react aggressively when reunited; and (3) anxious-avoidant, where infants do not use the mother as a secure base and avoid her following separation (Ainsworth & Bell, 1970).

While early attachment theorists focused on attachment, loss, and separation anxiety among infants and toddlers, more recent attachment research has begun to focus on intimate relationships between older children and other significant adults. This expansion of attachment theory naturally encompasses the interpersonal relationship between an elementary child and teacher. According to Howes (1999), there are three criteria for identifying attachment figures

beyond that of parent and child: (1) provides physical and emotional care; (2) is consistently present in one's life; and (3) is emotionally invested in the individual.

Because attachment is a relationship, it is borne from and strengthened by numerous interactions between the adult and student wherein the teacher shows sensitivity toward and involvement with the student on a frequent, ongoing basis (Bergin & Bergin, 2009). However, when a teacher is intermittently but frequently absent and various substitute teachers are hired, this significant student-teacher relationship may never be formed or may be less robust, ultimately negatively impacting student achievement. Attachment theory will be utilized to explain the impact of student and teacher absences on elementary student reading proficiency.

When students and teachers are absent, many aspects of education can be impacted, including fewer opportunities to forge or strengthen the student-teacher relationship. Bergin and Bergin (2009) assert that attachment performs two classroom functions:

1. Allows children to explore freely by providing security; and
2. Forms the foundation from which children learn to be social beings, with adults modeling behaviors and values.

Studies at the elementary school level have found that math and reading achievement are positively impacted by close student-teacher relationships that are characterized by warm, compassionate teachers (Birch & Ladd, 1997; O'Connor & McCartney, 2007; Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008). Referrals for special education and retentions of high-risk students were also decreased when students experienced a close relationship with their kindergarten teacher (Pianta & Nimetz, 1991). Early relationships between a child and teacher also set a trajectory for future academic growth (Hamre & Pianta, 2001; Pianta & Stuhlman, 2004). However, if elementary students and/or teachers are frequently absent or students do not

bond with a substitute teacher during a long-term leave of absence, it is hypothesized that academic achievement will be adversely affected due to the loss of security precipitated by separation from the attachment figure (i.e., the classroom teacher).

Significance of the Study

This study is significant because it identifies factors that affect elementary student outcomes in reading and examines the impact of both student and teacher absenteeism on these outcomes. Identifying the impact of both student and teacher absenteeism on student performance increases our understanding of often-overlooked school-level factors that could have immediate and long-term effects on achievement.

This study will inform future district policies with regard to student and teacher absences, the importance of relationship-building between students and staff, and the role of substitute teachers. It will also provide an opportunity to enhance understanding at the State and district levels as to why it is important to examine the root causes of student and teacher absences in order to be able to remove any barriers to attendance while exploring the relationship between these absences and student performance.

Definition of Key Terms and Acronyms

This section provides definitions for key terms and acronyms used in this study.

DAZE Adjusted – DIBELS Next version of maze procedures for measuring reading comprehension, assessing a student’s ability to construct meaning from text (Kaminski & Good, 2011).

DIBELS Next – Formative reading measures used to assess early literacy and reading skills for students in order to determine individual growth and development toward reading competence (Good et al., 2013).

DORF Accuracy Value – A number ranging from 0-105 at the end of first grade and 0-120 at the end of second and third grades which is assigned to DIBELS Oral Reading Fluency (DORF) accuracy percentages (Kaminski & Good, 2011).

DORF Words Correct – DIBELS Next Oral Reading Fluency (DORF) is a measure of advanced phonics and word attack skills, accurate and fluent reading of connected text. Score is based upon the number of words read correctly in a passage (Kaminski & Good, 2011).

NWF - Nonsense Word Fluency (NWF) is a brief, direct DIBELS Next measure of the alphabetic principle and basic phonics. It assesses knowledge of basic letter-sound correspondences and the ability to blend letter sounds into consonant-vowel-consonant and vowel-consonant words (Kaminski & Good, 2011).

CLS Score – Number of correct letter sounds.

WWR Score – Number of whole words read without sounding out.

Iowa Assessment (Reading) – A summative assessment administered in two parts that includes literary and informational passages with questions focusing on identifying, interpreting, analyzing, and extending information in passages (Iowa Testing Programs, 2013).

LNF Score – Letter Naming Fluency (LNF) is a brief, direct DIBELS Next measure of a student's fluency naming letters, assessing a student's ability to recognize individual letters and say their letter names (Kaminski & Good, 2011).

PSF Score – Phoneme Segmentation Fluency (PSF) is a brief, direct DIBELS Next measure of a student's fluency segmenting a spoken word into its component parts of sound segments (Kaminski & Good, 2011).

Retell – DIBELS Next measure that assesses reading comprehension, requiring students to retell a passage, including main idea, characters, setting, and important events (Kaminski & Good, 2011).

Socioeconomic Status – Delineated by whether students qualify for free or reduced lunch in the National School Lunch Program as determined by parental income guidelines.

Summary

This study seeks to examine the effects of student and teacher absences on elementary student reading proficiency. As students enter elementary school, teachers and students have a limited opportunity to form a close relationship. Frequent student and/or teacher absences can impact that relationship and can conceivably result in higher absenteeism rates of the other party. According to O'Connor and McCartney (2007), "Children with higher quality relationships evidence higher levels of achievement and cognitive skills in elementary school than those with lower quality relationships" (p. 344). By examining the effects of student and teacher absences on student reading achievement, policymakers, administrators, educators, and parents will better understand the impact of these absences as they relate to academic outcomes.

Chapter 2 provides a summary of the research currently available on factors that impact student and teacher absences and student achievement. Literature with regard to substitute teachers is also summarized.

Chapter 3 focuses on the methodology of this quantitative study. This chapter includes the methodological approach, research questions, sample and participants, data collection methods, variables, and data analysis. Delimitations and limitations are also discussed.

Chapter 4 provides the results of the data analyses. Those analyses include descriptive analyses; data screening; One-Way ANOVAs, correlations, and regression results.

Chapter 5 summarizes the research results presented in Chapter 4 and includes a discussion and conclusion based upon those results. Recommendations are also given with regard to potential policy implications and changes as well as suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

Introduction

“Especially when chronic absence reaches high levels, it is also important to consider the likely detrimental impact caused by the constant disruption to the learning environment for regularly attending peers, and the impact of unpredictable classroom dynamics on teachers’ working conditions.” (p. 7)

*Chang & Romero (2008)
Present, Engaged, and Accounted For*

According to the National Center for Children in Poverty, over 11 percent of kindergarten students and nearly 9 percent of first-grade students are chronically absent each year. Chronic absenteeism in kindergarten results in poorer academic performance in first grade (Chang & Romero, 2008). Students receiving free or reduced lunch or those identified as a racial minority, limited English proficiency, or special education student are also more at risk for chronic absenteeism (Utah Education Policy Center, 2012).

Public school teachers in the United States average between 9-10 absences each school year. Elementary teachers tend to have higher rates of absenteeism than teachers at the middle- and high-school levels where decreased percentages of certified staff members are female (U.S. Department of Labor, 2013; Clotfelter et al., 2009; Pitts, 2010; Speas, 2010).

Children in American public schools will spend over two-thirds of one full school year under the tutelage of a substitute teacher during their K-12 education, costing the American public approximately \$4 billion, annually (Glatfelter, 2006; Miller, 2008). The cost of teacher absence in terms of student achievement, however, is more difficult to calculate. With pressure to have students perform at high levels by utilizing highly-qualified teachers in every classroom,

teacher absenteeism becomes a focal point for many districts as they look for ways to increase proficiency levels and meet national, state, and local mandates.

Chapter 2 examines the current literature with regard to student and teacher absences and their effect on student outcomes. The literature reviewed in this chapter examines variables affecting student and teacher attendance as well as variables that affect student achievement. Literature regarding the certification, training, and utilization of substitute teachers and their impact on student achievement is also explored.

Student Demographics

Gender

Gender differences in reading ability have been studied for years. One widely-cited study that explored the sex differences in reading ability was conducted in spring of 1957 in 12 school systems located in 10 states. The sample included 6,646 males and 6,468 females in grades 2-8. Each child took all three of the Gates Reading Survey tests: Speed of Reading; Reading Vocabulary; and Level of Comprehension. Results indicated slightly less than 0.2 standard deviation of superiority for the girls on all tests (Gates, 1961).

A more recent study tested for gender differences in reading skills for 1,218 kindergarten through fifth-grade students from three elementary schools in the Southeast. Utilizing a cross-sectional design and five DIBELS measures, two-way repeated measures ANOVAs were conducted. Findings indicated that females scored significantly higher on all kindergarten measures but that there were no statistically significant differences in first grade. Differences in oral reading fluency were not significant in first-third grades, but a significant female advantage was found in fourth grade (Below, Skinner, Fearrington, & Sorrell, 2010).

Utilizing data from the National Assessment of Educational Progress (NAEP) dataset, a study explored the differences in the NAEP fourth, eighth, and twelfth grade reading scores by gender across the years 1992, 1994, 1998, 2000, 2002, and 2003. Sample design included the selection of geographic areas; selection of schools (public and private within the selected areas); and random selection of students within the selected schools. Results found statistically significant ($p < .001$) differences in reading scores by gender across grade levels and years, with females consistently outscoring males (Klecker, 2006).

Ethnicity

Reading achievement gaps in different ethnic, gender, and socioeconomic groups of first-grade students were estimated from data from the Early Childhood Longitudinal Study (ECLS). A subset of 2,296 students nested in 184 schools comprised the kindergarten to first-grade cohort. Analysis included a hierarchical linear model and controlled for child-level background differences. Findings indicated significant first-grade reading differences in African American students (-0.51 *SD* below Whites), boys (-0.31 *SD* below girls), and children from high-poverty households (-0.61 to -1.0 *SD* below advantaged peers) (Chatterji, 2006).

Another study also utilized the ECLS-K data collected from the National Center for Education Statistics (NCES 2000, 2004). A sample of approximately 23 children from each of more than 1,000 public and private schools were selected from a sample of geographic areas. The math sample consisted of 14,579 students, and the reading sample consisted of 14,544 students. A hierarchical linear model was employed, and findings indicated that Black ($-.34$ *SD*) and Hispanic ($-.45$ *SD*) children entered kindergarten with statistically significant lower scores than White children in math. Similar results were found in reading with Black ($-.2$ *SD*) and

Hispanic ($-.35 SD$) students scoring statistically significantly lower than White students (Cheadle, 2008).

Socioeconomic Status

A seminal study of the language growth of children was conducted with 42 families with children who either attended a preschool in the impoverished section of a Midwestern city or whose parents were professors at the nearby University. Parent-child verbalizations were observed and documented in the home setting once per month from 6 months to 3 years. Findings indicated that in the first four years of life, children in professional families were provided with 45 million words; average children in a working class family were provided with 26 million words; and children in welfare families were provided with 13 million words. Due to the enormity of the vocabulary gap, the best intervention programs could only strive to keep children on welfare from falling further behind children with working parents. Vocabulary use at age three was also predictive of third-grade language skills and reading comprehension scores (Hart & Risely, 2003).

The relationship between early academic achievement and attendance rates was explored for both math and literacy by utilizing data from the Early Childhood Longitudinal Study, Kindergarten Cohort. The link between social class and cognitive development and school attendance was also explored from a selection of roughly 1,000 public and private schools which offered kindergarten programs. From each school, a target sample of approximately 24 children was selected. Findings were statistically significant in that school absences and literacy learning differed by socioeconomic status, with negative effects of increased absenteeism stronger for lower SES children in kindergarten. No significant differences were found in math (Ready, 2010).

A study of 4,256 fourth-grade students from 42 public elementary schools in North Carolina explored the relationship between participation in the free or reduced lunch program and year-end tests in math and reading. Data were collected from the 1995-96 school year and secured from the Department of Assessment and Statistics of the County's Board of Education or from individual Building Improvement Reports. Findings indicated that the percentage of student receiving free or reduced lunch was significantly, negatively correlated with both reading and math scores (Okpala, Smith, Jones, & Ellis, 2000).

The relationship of school absenteeism with body mass index, academic achievement, and socioeconomic status was examined for 920 fourth-grade students in Columbia, South Carolina from the 2004-2007 school years. Standardized scores from the Palmetto Achievement Challenge Tests (PACT) were used as the outcome measures. Logistic binomial models were utilized and results indicated absenteeism and PACT composite scores were inversely related. (Baxter et al., 2011).

The effects of student attendance, socioeconomic status, and mobility were examined in two Title 1 schools with grades PK-3 located in the Commonwealth of Virginia. Data for 214 students involved in the study included attendance percentages, number of schools attended, and whether students qualified for free/reduced lunch. Outcome data utilized the Standards of Learning (SOL) test scores for math and English. Independent *t*-test results indicated higher mean scores for those students with good attendance; however, the results were not significant. When conducting the Pearson correlation to examine the relationship between attendance and achievement based on individual data, no significant relationship was found for English and a relatively weak yet significant relationship of .048 was found for math. However, the study limitations included a relatively small sample from one district that may be atypical of other

schools and districts in the state or country as well as use of the Virginia SOL test that is not a national testing instrument. These stated limitations may account for some of the discrepancy in results from similar studies (Jones, 2006).

Mobility

Student mobility, attendance, and math achievement were examined with data taken from all 80 buildings in a large northeastern, urban school district for the 2004-05 school year. Mobility data and student test scores from the Pennsylvania System of School Assessment (PSSA) for students in grades 8 and 11 were collected from the Real-Time Information system utilized by the district. When analyzing the impact of mobility on achievement, an analysis of variance was conducted for each grade. Findings indicated that students in all grades who were classified as stable attenders had significantly higher math scores than students in the nonattender categories – even when controlling for gender and socioeconomic status (Parks & Kanyongo, 2012).

Student Outcomes Related To Student Absence

Student attendance impacts student performance. A student needs to be present on a consistent basis in order to learn what is being taught in the classroom. Findings consistently indicate that the more a student is present in school, the higher the performance outcomes and the less likelihood of dropping out. While overall building and district average attendance rates are often reported, these rates can be misleading in that they do not identify the number of students who are chronically absent (defined by Attendance Works as missing school 10% or more of the time for any reason).

Utah closely studied attendance statistics in order to examine the relationship between outcome characteristics and chronic absenteeism. Student data for all Utah public school

students from the 2010-2011 school year as well as student longitudinal data for the 8th grade class of 2006 were utilized. Data included the outcome measures of Reading on Grade Level (grades 1-3), CRT Scores (grades 3-12), Cumulative GPA (grades 9-12), and Dropping Out (any grade). All outcomes correlated negatively and significantly with chronic absenteeism (Utah Education Policy Center, 2012).

Similar results were found when examining Indiana student attendance. Average daily attendance rates were acquired from the Indiana Department of Education for all public schools from 2003-2010. Academic outcome measures that were collected included Indiana Statewide Testing for Educational Progress-Plus (ISTEP+) proficiency ratings as well as graduation and dropout rates. Cohort data were examined for students enrolled in kindergarten and sixth grade for the 2003-2004 school year. A consistent trend was found among both cohort groups and among all subgroups in that the more a student was absent, the lower the ISTEP+ scores in both math and English/Language Arts (Spradlin et al., 2012).

A similar study was conducted in Ohio and examined the relationship between student attendance averages in buildings housing grades 4, 6, 9, and 12 and student achievement on the Ohio Proficiency Tests. The total sample of schools was 3, 171, with student population sample sizes ranging from 691 in 12th grade to 1,946 in 4th grade. Findings indicated moderate, positive relationships between student achievement and attendance at the 4th, 6th, and 12th grades and a strong positive relationship in 9th grade (Roby, 2004).

The attendance and achievement data for approximately 80,000 elementary and middle-school students in Philadelphia were examined from 1994-2001. Grade point average (GPA) was utilized as the primary outcome variable. Utilizing a fixed effects framework, findings indicated a positive, significant relationship between attendance and GPA (although another

methodological approach found that prior achievement was a significant factor in current student performance). Similar results were found in a supplemental analysis, indicating that attendance has predictive capabilities with regard to reading and math test performance as well (Gottfried, 2010).

An investigation examining whether attendance in kindergarten and first-grade was related to third-grade math and English-Language Arts (ELA) test performance was conducted in the fall of 2004, utilizing longitudinal data for 640 students from 8 districts located in the West. Statistically significant results indicated that 64% of students with strong attendance scored at grade level on the ELA assessment compared to only 17% of students who were chronically absent in their first two years. Math results were similar although not as pronounced (Applied Survey Research, 2011).

The relationship between number and levels of school absences and performance on a state reading assessment was explored in the Southwest region utilizing a convenience sample of 106 third- and fourth-grade elementary students attending an urban Title I elementary school. No group differences related to levels of student absenteeism were found with regard to reading skills nor were the number of days absent statistically significant with regard to state reading assessment performance. However, the author posits that non-significance can perhaps be explained by the small sample size, utilizing only two levels of student absence, and focusing on older students whose foundational reading skills were more developed (Schmitt, Balles & Venesky, 2013).

Demographic Variables Related to Teacher Absence

Research regarding teacher absence links teacher attendance rates to certain demographic factors. Independent demographic variables in targeted studies typically include combinations of

the following: (a) age; (b) gender; (c) level of education; (d) certification status; (e) years of teaching experience; and (f) family dynamics (Brouillette, 2012; Clotfelter et al., 2009; Gaziel, 2004; Scott & McClellan, 1990).

Age

According to recent national statistics (Bureau of Labor Statistics, 2011), workers age 55 and over are more likely to be absent from work than their younger colleagues who are 25-54 years of age. Full-time and salaried workers in this advanced age group had a 3.4% absence rate compared to a 2.9% rate for workers who were 25-54 years of age. When only illness/injury absences were examined, the difference between age groups of 0.7% was even more significant. The statistics were also consistent when examined within sex classifications, with older male and female American workers still being gone more often than their younger coworkers. However, the difference between age groups was significantly less between female groups (0.1% for females as compared to 0.9% for males) that is consistent with previous gender and family dynamics studies that indicate that women are absent more often to fulfill the caretaker role with regard to young children and dependent adults (Englander-Golden & Barton, 1983; Miller, 2008; Pflum, 2005; Pitts, 2010; Scott & McClellan, 1990).

Consistent with national statistics, an examination of New York schools in 1986-87 supported the findings that some teachers near retirement age are more likely to be absent – even when induced to be present by monetary incentive plans. Teacher absences for the Sugar Hill and North Forests districts in New York were analyzed following the introduction of an attendance incentive plan. Compared to the statewide average number of teacher absences of 8.9 days that year (Ehrenberg, Ehrenberg, Rees, & Ehrenberg, 1991), these two schools had average teacher absences of 5.3 and 13.4 days, respectively. However, because Sugar Hill implemented

an incentive plan that year, the 1985-86 school year would have been a better comparison in which teachers missed an average of 7.2 days. Findings indicated that in one particular elementary school in the North Forest district, older teachers near retirement age were the primary abusers of the policy even after the introduction of the attendance incentive plan. These teachers demonstrated a “use it or lose it” mentality in which there was a sense of entitlement regarding all of their sick leave since they had accumulated the maximum 200 days that the district compensated at retirement. Supporting absence behavior by a previous principal reinforced that mindset and will be examined under organizational factors (Jacobson, 1990).

Other studies have found mixed or conflicting results with regard to the relationship between a worker’s absence and age (Ehrenberg et al., 1991; Martocchio, 1989; Scott & McClellan, 1990). Meta-analyses examined two measures of employee absenteeism: (1) frequency index - the number of absences in a specified period; and (2) time-lost index - the number of days absent in the same period. Across 17 studies, absence data were available for 7,772 employees. Separate meta-analyses were conducted for the two indices. Correlational analyses indicated that both absence frequency and time-lost are negatively correlated to age (Martocchio, 1989).

When frequency and predictors of 48,148 teacher absences in a central Virginia school division were examined by utilizing data collected from the Payroll and Human Resources department for the 2005-2008 school years, conflicting results were found. A linear regression was conducted that combined the dependent variable (total absences) with the independent variables of gender, years of experience, and age. There was a negative correlation between absence and age that indicates that as teachers get older, they are less likely to be gone from their teaching responsibilities (Pitts, 2010). There were, however, other results within the same study

with regard to years of experience that were positively and strongly correlated with age. Findings suggested that teachers with more experience (and, consequently, older) were more likely to be absent. The author argued that the paradoxical results can be explained. As teachers in this district age, they are more likely to use accrued sick and personal leave. However, as these teachers near retirement age and accrue the required years of experience necessary, they are less likely to use these days. This particular state's retirement system allowed teachers to purchase service credit with unused sick leave.

Determinants of teacher and student absences were examined in 419 districts in New York (excluding New York City), with nearly 60% of the state's school districts responding to a superintendent survey regarding 1986-87 data. Findings indicated that the greater the number of teachers aged 55+, the lower the usage of sick leave. It was suggested that this decrease in leave-taking behaviors could be attributed to a district's use of buyback provisions for unused sick leave at retirement (Ehrenberg et al., 1991).

Absences of 539 teachers, guidance counselors, and librarians in all the junior and senior highs in an urban school district located in the mid-Atlantic region were examined. Demographic and absenteeism data were collected from personnel records, and surveys were administered to teachers that measured job satisfaction, central life interest, job involvement, role conflict, and reason for absence. Statistical analyses were conducted to examine interaction between age and gender, including both hierarchical and step-wise regressions. Young adults were defined as 21-39 years of age; middle age adults defined as 40-54 years of age; and older adults defined as over the age of 55. Results indicated that young adult women had the highest rate of absenteeism that could be related to this subgroup's age span including prime child-bearing years. Age, however, had a positive influence on men's total days absent. The authors posit this influence could be

related to males being more likely to take time off for child-care problems (as opposed to child illness) and for sporting and leisure events (Scott & McClellan, 1990).

International studies with regard to teacher absence rates and age have produced results inconsistent to U.S. labor statistics – with younger teachers having more occurrences of absenteeism and total days missed from the classroom (Borg & Riding, 1991; Gaziel, 2004; Rosenblatt & Shirom, 2005). In a study conducted in the West Jerusalem district in 2002, 10 teachers were randomly chosen from each of 20 randomly selected primary schools and asked to complete a questionnaire that resulted in a response rate of 74%. Subsequent data were collected three months later, consisting of objective and subjective measures of absenteeism. Results indicated that younger teachers and those with less seniority took significantly more voluntary absences (vacation and uncertified illness) during the school year in question (Gaziel, 2004).

An Israeli study examined the effects of socio-demographic variables on Israeli public elementary and middle school teacher absence in 2000-2001. Utilizing data obtained from the Israeli Ministry for 51,916 teachers, findings included higher rates of absenteeism in teachers 35 years or younger and among less educated (uncertified or minimally certified) teachers (Rosenblatt & Shirom, 2005).

A 1991 study of secondary teachers in Maltese schools examined teacher stress, job satisfaction, absenteeism, career intention, career commitment, and self-image as a teacher. Of the 866 full-time teachers in all 23 state schools who were invited to participate, 545 usable questionnaires were returned --- 64.9% of which were completed by female teachers. Findings indicated that teachers under the age of 31 had the highest overall frequency of absenteeism and number of days absent compared to the other four age groups; however, teachers in the top two

age groups missed more days of school than those teachers in the 31-40 age subgroup (Borg & Riding, 1991).

When examining demographic predictors of absenteeism, international studies are difficult to compare directly to American studies. This difficulty is due, in part, to different cultural expectations regarding gender role expectations. However, there are also diverse international policies with regard to worker absence and leave procedures that need to be taken into consideration.

Gender

According to 2010 national statistics, the mother was employed in 58.9% of married-couple families with children less than 6 years of age, compared with 59.6% of families lead by single mothers. In families with children 6 to 17 years of age, the mother was employed in 72.1% of families headed by single mothers, compared with 70.7% of married-couple families. Elementary and middle school teachers are historically and predominantly female, accounting for 81.7% of the 2011 workforce. Early childhood teachers account for an even greater gender disparity with 97% of preschool and kindergarten teachers being female (U.S. Department of Labor, 2011).

Female teachers and working women in general are still expected to fulfill societal roles of childcare – including being the parent to stay home from work to care for sick children and dependent adults or staying home if daycare issues arise. According to Pflum (2005), “Our society is dominated by patriarchal influences so strong that even in areas considered the realm of the female where men commonly have no interest in participating, expectations for women still prevail....Schools are not designed to benefit women” (p. 6). Englander-Golden and Barton (1983) examined whether sex differences and parenthood made differences in absences from work at a large corporation in the Southwest. Based upon questionnaire responses and time

sheets, working women with children took an average of 50.48 hours of sick leave each year compared to men with children who averaged 34.3 hours of annual sick leave. Of those participants who completed questionnaires, 67% of the women and only 16% of the men reported that a child's illness, injury, or doctor appointment would require them to miss work. Both of these findings were statistically significant.

In the 2011 American workforce, males in the United States age 25 and older who worked full-time had a 2.3% absence rate, compared to 3.9% for females (Bureau of Labor Statistics, 2011). Similar statistics can be found in the field of education (Clotfelter et al., 2009; Pitts, 2010; Scott & McClellan, 1990).

Clotfelter, Ladd and Vigdor (2009) examined teacher absences in North Carolina public schools from 1994-2004, utilizing data collected from the North Carolina Department of Public Instruction. By estimating ordinary least squares (OLS) regressions with different types of absences as the dependent variable, findings indicated that female teachers utilized 3.2 more days of personal/sick leave each year than their male counterparts at ages 25 and 35 and 1.3 more days at age 45.

Scott and McClellan (1990) examined absences of 539 teachers, guidance counselors, and librarians in all the junior and senior highs in an urban school district located in the mid-Atlantic region. Demographic and absenteeism data were collected from personnel records, and surveys were administered to teachers that measured job satisfaction; central life interest; job involvement; role conflict; and reason for absence. Statistical analyses that included a *t*-test, hierarchical regression, and step-wise regression indicated that while female teachers did not have statistically higher occurrences of absences, they did accrue significantly more days of

absence (6.92 days) than males (4.83 days). Women in the study stated that they were more likely to stay home to care for sick children and dependent adults.

In addition to examining gender, Pitts (2010) also examined the impact of FMLA leave on attendance rates. Data were collected regarding teacher absence in a large, central Virginia school over a three-year period from 2005-2008. By utilizing an analysis of variance (ANOVA), a statistically significant relationship was found between men and women in the rate of absenteeism with women (41.99 days) more likely to be absent than men (33.84 days). However, realizing that FMLA leave can have a significant impact on female teacher attendance, FMLA leave was removed and a separate bivariate analysis was performed. With FMLA leave removed, there was no significant impact on the reported absenteeism rate for females (41.73 days) in this particular study.

Studies in other countries, however, produced conflicting results. In an Israeli study, gender was found to have no impact on teacher absenteeism (Rosenblatt & Shirom, 2005). In a study that examined teacher and health worker absence in developing countries, male teachers were found to be absent more than female teachers in primary schools in Bangladesh, Ecuador, India, Indonesia, Peru, and Uganda (Chaudhury, Hammer, Kremer, Muralidharan, & Rogers, 2006).

Certification Status

“Although teacher certification is pervasive, there is little rigorous evidence that it is systematically related to student achievement. In recent years, many states have adopted more stringent requirements for admission to teacher licensing programs and entry into the profession. Additionally, some states have increased the opportunities for teachers to enter via alternative routes, and other states...faced with teacher shortages have increasingly hired teachers on emergency credentials. These trends make the issue of relative effectiveness of different types of teacher certification and state certification policies an important one.” (Goldhaber & Brewer, 2000, p. 141)

The *No Child Left Behind Act* (NCLB) of 2001 requires that all teachers of core academic subjects in the classroom be highly qualified by the 2005-06 school year and for states to regularly report their progress toward this goal. According to the criteria set forth in NCLB, highly-qualified is defined as: (1) attaining a bachelor's degree or better in the subject taught; (2) obtaining full state teacher certification; and (3) demonstrating knowledge in the subjects taught. However, exceptions and alternate methods of attaining "highly-qualified" status have been made in an attempt to allow rural districts and middle- and high-school teachers who teach multiple subjects more flexibility in reaching the goal (U.S. Department of Education, 2004). The assumption, therefore, is that the vast majority of teachers in schools that receive public funding in the United States have been properly certified as defined by NCLB since the 2005-06 academic year, although certification requirements vary considerably among states. While there is great disparity among state certification requirements, several studies do, however, provide an indication that state certification has a positive impact on student outcomes (Darling-Hammond, 2000; Goldhaber & Brewer, 2000; Kane, Rockoff, & Staiger, 2008).

Teacher quality indicators and other school-level factors were examined in order to determine whether there is a relationship with student achievement. Relevant teacher qualification and school-level data were collected from the 1993-94 Schools and Staffing Surveys (SASS) and student achievement and demographic data from the reading and math portions of the 1990, 1992, 1994, and 1996 National Assessment of Educational Progress (NAEP). Teacher quality was measured in three levels. "Well-qualified" status indicated the proportion of teachers who were state-certified and who held a major in the field taught or classroom elementary teachers with elementary education degrees or specialized teachers with subject-area emphasis. The proportion of teachers who were "fully certified" included those

with standard certification or probationary teachers who had met all requirements other than the probationary time period. The final category included teachers who were “less than fully certified,” indicating no certification or provisional, temporary, or emergency certification. A multivariate analysis was utilized and controlled for student poverty and limited English proficiency. The proportion of well-qualified teachers in a state was found to be a significant predictor of student reading and math achievement. Conversely, uncertified new teachers and those who did not hold a minor in their teaching field were negative predictors of student achievement (Darling-Hammond, 2000).

A study of New York City teachers and students examined the relationship between teacher certification status and student math and reading outcomes for grades 4-8 for the 1998-2005 school years. New York City employed approximately 50,000 teachers between 1999 and 2005. Of those teachers, approximately 46% were certified; 34% were uncertified; and 20% were alternatively certified. When examining the impact of initial teacher certification on student test scores in math and reading, significant differences were found between the scores of students taught by certified, uncertified, internationally certified, and alternatively certified teachers. However, after controlling for previous year test scores, these differences all but disappeared. Students assigned to certified teachers for math performed 0.02 standard deviations higher than peers assigned to international teachers while students taught by Teach for America corps members scored 0.02 standard deviations higher than peers taught by certified teachers. In reading, students taught by a Teaching Fellow scored 0.01 standard deviations lower than their peers taught by a certified teacher (Kane et al., 2008).

A study of teacher certification and its impact on math and science scores of 12th grade students corroborated earlier findings. The study consisted of data from the National Educational

Longitudinal Study of 1988 (NELS:88). The survey was conducted with eighth-grade students in 1988, and a portion of those students were resurveyed in 1990 and 1992. The sample included 3,786 math students, 2,534 science students, 2,098 math teachers, and 1,371 science teachers. Senior-level teachers were asked which type of math and science certification they held. Responses included (1) regular or standard; (2) probationary; (3) emergency; (4) private school certification; or (5) not certified in subject. When compared to national data that indicated that 83.3% of teachers in 1990-91 had full standard state certification in the subjects taught, the surveyed teachers' level of certification were similar in both areas (86% in math and 82% in science). Utilizing a multiple regression framework, findings indicated that students of teachers who hold a standard, probationary, or emergency certification in math outperformed their peers who had teachers with private-school or no certification on the 12th-grade math test. While not as powerful, similar results were found in science with teachers with private or no licensure in science having a negative impact on scores (Goldhaber & Brewer, 2000).

Goldhaber and Brewer's findings were further examined in a meta-analysis. Twenty-one studies involving teacher characteristics and student achievement were systematically reviewed and examined for quality before inclusion in a synthesis designed to assist policymakers and researchers. Only two studies met design standards with regard to certification and included controls for socioeconomic status (Goldhaber & Brewer, 1997, 2000). Overall conclusions indicated that high school students had higher math outcomes when their teachers had standard math certification as compared to private school or no math certification (Wayne & Youngs, 2003).

Other studies, however, did not find a relationship between teacher certification and testing requirements and student outcomes or teacher quality. An examination of the relationship

between teacher quality and student achievement in Los Angeles, California found no relationship between teacher licensure tests that are required for certification and student outcomes. In order to be certified in California, teachers are required to take up to three types of tests: (1) general knowledge test; (2) subject area test (single subject for secondary teachers and multiple subjects for elementary teachers); and (3) reading pedagogy test for elementary teachers. Panel data, including California Achievement Test, Sixth Edition (CAT/6) scores for reading and math, were obtained from the Los Angeles Unified School District for the 2000-04 school years for students in grades 2 through 5. Teacher licensure test scores for six cohorts of elementary education majors who attended California State University from 2000-2006 were obtained. When matched with Los Angeles teachers, a sample of 2,738 was available for the study. When examining the relationship between licensure test scores and student performance, findings indicated that teacher scores on basic skills, subject specific, or reading pedagogy tests had no significant effect on student achievement in either reading or math (Buddin & Zamarro, 2009).

The impact of state-mandated certification tests on teacher quality and salaries was examined. Data from the national representative Schools and Staffing Survey (SASS), teacher and administrator surveys, and teacher-matched SAT and Praxis scores were utilized. Demographic information was also collected with regard to whether teachers had alternative certification status and majored in their teaching subject. While findings indicated that by imposing a testing requirement states were more likely to hire teachers who had majored in the subject being taught, little impact was found between testing and teacher quality (Angrist & Guryan, 2008).

Although hiring teachers who are “highly qualified” is mandated for all states under NCLB, it is difficult to ascertain the impact of teacher certification on student outcomes due to the wide disparity of requirements necessary to achieve certification in each state. Until all states are required to standardize the process for licensing teachers – especially as it relates to alternative certification -- researchers will continue to struggle to achieve consistent results with regard to teacher certification and its relationship with student achievement.

Family Dynamics

Family dynamics involves “the complexities and dynamic nature of family and social interactions, including their biological and cultural underpinnings and the economic and political forces that help determine their shape and consequences” (Family and Human Dynamics Research Institute, 2012). When family dynamics are reduced to examining the differences of parents’ leave-taking behaviors with regard to childbirth and caring for other family members, American women continue to primarily fulfill the caretaker role that has historically been expected of them (Miller, 2008). Several studies note the bearing a patriarchally-influenced society has on working women’s role in the family structure (Englander-Golden & Barton, 1983; Pflum, 2005; Pitts, 2010; Scott & McClellan, 1990).

Society’s construction of the teaching profession and motherhood impacts how women balance both roles within a male-influenced culture (Pflum, 2005). Utilizing purposeful sampling in a qualitative case study methodology, data collection methods included interviews, dialogue journals, and reflexive journals for Pflum’s (2005) three participants. While the emergent themes do not directly address the issue of teacher absence, they do speak to the participants’ conflicting emotions with regard to family dynamics and their competing roles of mother and teacher:

All aspects of the lives of the mother teachers...are saturated with feelings of guilt. The women are not only often physically absent from their children, but thoughts of their students often invade their lives at home. They feel frustrated with having to choose between children and feel guilty sensing that they are sacrificing their own child on behalf of their students. (p. 132-133)

Working females with children continue to bear the brunt of domestic obligations with regard to caring for ill dependents and by accompanying minors or dependent adults to appointments. Absences of 539 teachers, guidance counselors, and librarians in all the junior and senior highs in an urban school district located in the mid-Atlantic region were examined. Demographic and absenteeism data were collected from personnel records, and surveys were administered to teachers that measured job satisfaction; central life interest; job involvement; role conflict; and reason for absence. Statistical analyses that included hierarchical and step-wise regressions indicated that while men reported more dependents, women were more likely to stay home to care for a sick child or dependent adult. Total days absent for a female were positively related to the number of reported dependents (Scott & McClellan, 1990).

Similar results were found in a study that examined whether parenthood made differences in absences from work at a large corporation in the Southwest. Based upon questionnaire responses and time sheets, several statistically significant findings were reported. Working women with children at home took an average of 50.48 hours of sick leave each year compared to men with children who averaged 34.3 hours of annual sick leave. Of those participants who completed questionnaires, 67% of the females but only 16% of the males reported that a child's illness, injury, or doctor appointment would require them to miss work (Englander-Golden & Barton, 1983).

Not all studies supported family dynamics as a predictor of teacher absence. Rosenblatt & Shirom (2005) examined the effects of socio-demographic variables on Israeli public elementary and middle school teacher absence in 2000-2001. Utilizing data obtained from the Israeli Ministry for 51,916 teachers, hierarchical regression analyses indicated there were no significant relationships between teacher absence and marital status or number of children in a household. Ages of children in the home, however, were not considered, and the difference in cultural expectations must also be considered.

According to the *Family and Medical Leave Act* (FMLA) of 1993, companies with 50 or more employees are legally mandated to provide up to 12 weeks of unpaid leave for the birth of and caring for a newborn. FMLA also encompasses adoption and foster care, caring for an immediate family member with a serious health condition, and personal medical leaves. Mothers who are employed before giving birth and have paid leave coverage are more likely to return to the workforce and more quickly than those who are unemployed before giving birth or do not have paid leave provisions. Also, women who have leave coverage are more likely to take up to the 12 weeks of maternity leave allowed by law than their counterparts who were employed but did not have leave coverage as a benefit of their employment (Berger & Waldfogel, 2004). However, when frequency and predictors of teacher absence in a central Virginia school division were examined by utilizing data collected from the Payroll and Human Resources department for the 2005-2008 school years, conflicting results occurred (Pitts, 2010). Findings indicated that sick leave accounted for the majority of absences and that the use of FMLA increased significantly over the course of the study. In order to determine the effect of FMLA leave on overall results, the use of FMLA leave was excluded and separate bivariate analyses were performed. Findings indicate that FMLA leave did not significantly impact

overall absenteeism rates, with women continuing to be absent more often than men. While there was no statistical significance regarding FMLA leave, all 23 teachers who took FMLA leave were female.

Educational Attainment

Educational attainment is defined as the highest level of education that an individual has completed (U.S. Census Bureau). For the purposes of this study, educational attainment includes formal coursework in post-secondary education leading to a degree or advanced degree in education as well as participation in other coursework or professional development opportunities relevant to teaching.

Most current teacher salary schedules in Iowa are structured to provide monetary incentives for advanced degrees and coursework. The underlying assumption behind this strategy is that student achievement will be positively impacted by higher educational attainment of teachers. Surprisingly, only a limited number of studies lend credibility to this postulation, and they are primarily in the field of mathematics (Hill, Rowan, & Ball, 2005; Okpala et al., 2000; Wayne & Youngs, 2003).

An examination of public schools in one North Carolina county investigated the impact of selected school, teacher, and family demographic variables on fourth-grade students' reading and math achievement. Achievement scores for end-of-year tests in math and reading for 4,256 students from 42 elementary schools were procured from the Department of Assessment and Statistics of the County's Board of Education for the 1995-96 school year. Data were collected from individual school improvement reports and included the percentage of teachers with master's degrees. Findings indicated a significant relationship between the percentage of teachers

with master's degrees and mathematics achievement; however, no significance was found for reading (Okpala et al., 2000).

Twenty-one studies involving teacher characteristics and student achievement were systematically reviewed and examined for quality before inclusion in a synthesis of results designed to assist policymakers and researchers. Teacher characteristics included college ratings, test scores, degrees and coursework, and certification status. Overall findings indicated that high school students have higher math outcomes when their teachers have additional coursework or advanced degrees in mathematics. No conclusion regarding the impact of teacher degrees and coursework could be reached with regard to science, history, or English outcomes for high-school students. Additional evidence was also needed in order to determine any relationship between degrees and coursework regarding elementary student outcomes (Wayne & Youngs, 2003).

Another study examined the effect of teachers' mathematical knowledge on student achievement. The sample encompassed 42 districts in 15 states and included 1,190 first graders, 1,773 third graders, 334 first-grade teachers, and 365 third-grade teachers. Cohort data were collected in 2000-01 for first- and third-graders in 53 schools and in 2001-02 in 62 additional schools. Student data included parent interviews and standardized student assessments. Teacher data were collected from an annual questionnaire and a teacher log that included 60 entries regarding time spent on math, covered content, and instructional strategies. In order to estimate the effect of student, teacher, and school characteristics on student achievement, linear mixed models were utilized. Findings suggested that teachers' mathematical knowledge for teaching was a positive predictor for student gains in mathematics achievement in both first and third grades (Hill et al., 2005).

Other studies, however, found no corroborating evidence that advanced degrees and additional coursework improved student outcomes. Data acquired from the Early Childhood Longitudinal Study (ECLS) were utilized to study the relationship between elementary teacher qualifications and first-grade reading and math achievement. The ECLS is a national, longitudinal survey that is sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES) and includes a variety of family, school, classroom, and student variables. For the purposes of this study, kindergarten data were collected for the 1998-99 school year for approximately 23,000 students, with follow-up first-grade data collected in 2000. Teacher qualification variables for first-grade teachers available from the survey included highest degree attained, degree type, certification status, coursework related to teaching, and years spent teaching different grade levels. Three indicator variables were constructed. The first variable measured whether teachers held an advanced degree. The second variable indicated whether teachers had a degree in elementary education. The final variable examined the ratio of subject-specific coursework in reading or math to total coursework in reading, math, and science in order to be able to examine the impact of an area of teacher specialization. Findings indicated that certification status, advanced degrees, and additional coursework in reading and math had no effect on student outcomes for reading or math. A significant effect was found for first-grade reading outcomes when the teacher had an elementary education degree as compared to an early childhood degree (Croninger, Rice, Rathbun, & Nishio, 2007).

An examination of the relationship between teacher quality and student achievement in Los Angeles, California also found no relationship between advanced degrees and student outcomes. Panel data, including California Achievement Test, Sixth Edition (CAT/6) scores for reading and math, were obtained from the Los Angeles Unified School District for the 2000-04

school years for students in grades 2 through 5. When examining the relationships between teacher quality and observed teacher characteristics, advanced teacher degrees had no impact on student achievement in either reading or math. Also, there was no relationship between higher scores on the California license exam that would be indicative of more advanced knowledge with regard to basic subjects and skills or reading pedagogy and student outcomes (Buddin & Zamarro, 2009).

The relationship between fourth-grade student achievement in math and teacher absenteeism for the 2010-11 school year was examined for nine school districts in northern Louisiana. Archival data were collected from the personnel offices of each district for all 97 fourth-grade teachers employed in the districts. Student outcome data were collected from the Louisiana Department of Education and consisted of fourth-grade mathematics achievement scores from the Louisiana Education Assessment Program (LEAP). When examining the teacher variable of level of education, a multiple regression analysis was utilized to examine whether demographic variables of teacher age, years of experience, level of education, and certification type were predictors of teacher absenteeism. The demographic variable level of education was categorized by (1) bachelor's degree; (2) master's degree; and (3) further graduate coursework beyond the master's level. Neither the overall model nor any of the isolated demographic variables including level of education was significant (Brouillette, 2012).

When examining the impact of degree attainment and additional coursework on teacher attendance, however, studies yielded mixed results. Relevant teacher demographic and absence data including dates and reasons for teacher absences were obtained from the North Carolina Department of Public Instruction, along with teacher records from the North Carolina Education Research Data Center for the school years 1994-2004, resulting in a sample of over 492,000

observations. Covariates used as explanatory variables in the regression included gender, race, age, experience, education, and teacher credentials. Relevant findings indicated that teachers who had attained a master's degree or National Board certification missed fewer days of work (Clotfelter et al., 2009).

An examination of predictors of teacher absence in a large, central Virginia school district was conducted by looking at the attendance of 1,198 employees who were continuously employed under 10- or 11-month contracts for the 2005-2008 school years, accounting for 48,148 absences. Demographic data were also collected from the district's Information System and included age, gender, race, number of years of experience, highest degree earned, level of school assignment, and teaching assignment. An analysis of variance (ANOVA) was used to examine the relationship between number of absences over the three-year period and level of education of the teacher. Findings indicated that there were no statistically significant differences (Pitts, 2010).

Overall findings with regard to teacher educational attainment and its impact on student achievement and teacher attendance has yielded mixed results. Interestingly, the predominance of studies focused on mathematical achievement as opposed to reading outcomes. While several studies have found positive impacts of teacher educational achievement on student math achievement (Hill et al., 2005; Okpala et al., 2000; Wayne & Youngs, 2003), other studies did not find a significant relationship (Brouillette, 2012; Buddin & Zamarro, 2009; Croninger et al., 2007). Examinations of the impact of teacher educational attainment on teacher attendance also yielded conflicting results (Clotfelter et al., 2009; Pitts, 2010). Clearly, more research is necessary in order to determine the relationship between teacher educational attainment and student achievement and between teacher educational attainment and teacher absence.

Years of Experience

Not all teachers take the express route of going directly to college from high school and thereafter immediately beginning their teaching careers. Many women choose to delay or interrupt their careers in order to raise and care for their children. While age and years of teaching experience are strongly correlated, they are not synonymous; therefore, it is also important to examine the effect of years of teaching experience on teacher absence.

With an incredibly steep learning curve, novice teachers, especially those with only one-two years of experience, typically have lower student outcomes than their more experienced colleagues (Buddin & Zamarro, 2009; Croninger, et al., 2004; Darling-Hammond, 2000; Miller, 2008; Okpala et al., 2000). No or limited teaching experience and increased teacher absenteeism can each have negative effects on student achievement. However, if both are present, student outcomes could be greatly diminished. According to Miller (2008):

To put the detrimental effects of teacher absence in terms of the well-documented relationship between initial teaching experience and effectiveness, every 10 absences...lowers mathematics achievement by the same amount as having a teacher with one year to two years of experience instead of a teacher with three years to five years of experience. (p. 3)

However, presumably due to a limited reserve or bank of sick leave, these less experienced teachers tend to be absent less often (Clotfelter et al., 2009; Miller, 2008; Speas, 2010).

Teachers in a North Carolina public school system with three or fewer years of teaching experience averaged fewer absences than their more-experienced colleagues. Data were collected in order to analyze teacher absences for the Wake County Public School System for the 2007-08 school year. Data included dates and reasons for 101,971.5 teacher absences taken by

9,305 teachers; teacher demographic data; and student test scores. Findings indicated that teachers with 0-3 years of experience averaged 7.96 days of absences compared to 10.65 days for those with 4-9 years of experience; 9.97 days for those with 10-19 years of experience; and 9.66 days for those with 20 or more years of experience. The author suggested that because leave time was accrued at a higher rate commensurate with experience, the teachers with more experience were more likely to take advantage of that benefit. Also, after completing four years of successful teaching experience, teachers in this district were eligible for career status that may have instilled a sense of entitlement and explained why teachers in this experience category accumulated the most absences of any group. Teachers in this group may also have been more likely to be bearing and raising children (Speas, 2010).

Average absence rates as a result of vacation and illness are often positively correlated with experience, as was evidenced in a North Carolina study that examined the frequency, incidence, and consequences of teacher absences in public schools. Relevant teacher demographic and absence data including dates and reasons for teacher absences were acquired from the North Carolina Department of Public Instruction, along with teacher records from the North Carolina Education Research Data Center for the school years 1994-2004. Findings indicated that teachers with 2-3 years of experience took 1.2 more vacation days than novice teachers and 2.1 more sick/personal days. Due to teachers with more experience earning more than the minimum vacation leave (which this particular district mandated novice teachers to take to coincide with set school vacation days), it was easier for more experienced teachers to be absent from school (Clotfelter et al., 2009).

Dates and 130,747 excusal codes for absences taken by 5,189 teachers in 106 schools were acquired from a large, urban school district in the northern United States for the 2001-2005

school years. Teachers with the least or most experience were absent less than their colleagues with middle levels of experience, again, consistent with other studies that suggest novice teachers have no leave accrued and veteran teachers are more likely to bank unused leave in order to reap financial benefits upon retirement. However, when explored from a job security angle, teachers with tenure were more likely to take 0.8 more discretionary days of absence than their untenured colleagues (Miller, 2008).

Organizational Variables Related to Teacher Absence

The concern with teacher absenteeism rests on three premises: (1) that a significant proportion of teachers' absences is discretionary; (2) that teachers' absences have a non-trivial impact on productivity; and (3) that feasible policy changes could reduce rates of absence among teachers. (Miller, 2008, p. 72)

Research regarding teacher absence links teacher attendance rates to certain organizational factors. Independent organizational variables in targeted studies typically include examination of grade level; student enrollment and staff size; principal leadership style; and the workplace climate/absence culture present in buildings/districts.

Grade Level

Because the vast majority of elementary and middle school teachers are female, especially those in early childhood teaching positions (Bureau of Labor Statistics, 2011), one might anticipate, in our patriarchically-influenced society, that those female teachers would be absent more often for childbirth and family-related issues. Recent studies support this presupposition that the related factor of grade level is a predictor of teacher absence (Clotfelter et al., 2009; Miller, 2012; Pitts, 2010; Speas, 2010).

An examination of predictors of teacher absence in a large, central Virginia school district was conducted by looking at the attendance of 1,198 employees who were continuously employed under 10- or 11-month contracts for the 2005-2008 school years, accounting for

48,148 absences. Demographic data were also collected from the district's Information System and included age, gender, race, number of years of experience, highest degree earned, level of school assignment, and teaching assignment. An analysis of variance (ANOVA) was used to examine the relationship between number of absences over the three-year period and teaching assignment. Findings indicated that there was a statistically significant relationship between teachers assigned to various levels and the number of days absent. While the highest average absentee rates were for those teachers in alternative/technical/specialty schools (71 days), elementary teachers had the highest average number of days missed in the regular school setting (42.77 days) as compared to middle- (39.83 days) and high-school teachers (36.03 days). There was a negative correlation between absences and high school teachers, indicating high school teachers were less likely to be absent than their colleagues who were teaching in other levels or settings (Pitts, 2010).

High school teachers in a North Carolina public school system also averaged fewer absences than their elementary- and middle school-level colleagues. Data were collected in order to analyze teacher absences for the Wake County Public School System for the 2007-08 school year. Data included dates and reasons for 101,971.5 teacher absences accrued by 9,305 teachers; teacher demographic data; and student test scores. Findings indicated that high school teachers averaged 8.8 days of absences compared to 10.7 days for elementary teachers and 10.8 days for middle school teachers. While 85% of this district's teaching staff was female, teaching levels were not disaggregated by sex in order to isolate the impact of teaching level alone on absences (Speas, 2010).

While exploring the relationship between teacher absence and the percentage of low-income students served in schools, the findings also corroborated the relationship between grade

level and teacher attendance. Relevant teacher demographic and absence data including dates and reasons for teacher absences were obtained from the North Carolina Department of Public Instruction, along with teacher records from the North Carolina Education Research Data Center for the school years 1994-2004. The findings indicated that high-absence schools (identified as average absences of more than 9.84 sick/personal days per teacher within the last five years) were more likely to occur in buildings serving higher percentages of low-income students. When examining cumulative average teacher absences for the 1994-2004 school years relevant to this section, at the lowest income quartile of percent free lunch, 33.9% of elementary buildings were designated high-absence schools compared to 25.6% of middle schools and 16.0% of high schools. These rankings remained consistent among the second, third, and highest income quartiles for all building levels, with elementary buildings identified as high-absence schools at a greater rate than middle schools and high schools (Clotfelter et al., 2009).

The Office of Civil Rights, operating under the U.S. Department of Education, began including a new item on teacher absences on its 2009 Civil Rights Data Collection survey. Each district selected to complete the survey was asked to report the percentage of teachers at each building who are absent more than ten times during the year. Absence data were acquired from 56,837 schools during the 2009-10 school year. Similar to other findings, an average of 33.3 percent of high school teachers were absent more than ten days, compared to 36.7 percent of middle school teachers and 37.8 percent for elementary teachers (Miller, 2012).

Student Enrollment and Staff Size

Student enrollment and the number of staff in a building have also been studied to examine the influence on teacher absence and student achievement, indicating class and school size have an impact on reading achievement (Okpala et al., 2000) and that teachers who are

members of a larger staff may take more short-term leave, especially on Mondays and Fridays (Winkler, 1980). Small effect sizes were found with regard to school size and teacher quarterly absence rates in Australia (Bradley, Green, & Leeves, 2007).

An examination of public schools in one North Carolina county investigated the impact of selected school, teacher, and family demographic variables on fourth-grade students' reading and math achievement. Achievement scores for end-of-year tests in math and reading for 4,256 students from 42 elementary schools were procured from the Department of Assessment and Statistics of the County's Board of Education for the 1995-96 school year. Data on class and school size were collected from individual school improvement reports and from individual elementary schools. Pearson correlational coefficient was used to determine the relationship, indicating a significance level of 0.10 between class size and reading achievement and 0.01 between school size and reading achievement. However, no significance was found for math (Okpala et al., 2000).

The effects of sick-leave policy variables on public teacher absenteeism were examined. One underlying assumption in this study was that absenteeism due to illness is partially abused by healthy employees. Data from California and Wisconsin were analyzed to determine the effectiveness of alternative sick leave policies and to identify those policies that preclude this sick-leave abuse. Ordinary least squares were used to estimate the regression model, controlling for job characteristics that included size of staff (larger or smaller than 21) and student-teacher ratio. Results indicated a positive correlation between staff size and short-term absences with a staff of 20 averaging .92 more short-term absences and .34 more Monday/Friday absences than a staff of 10. Student-teacher ratio showed no statistical significance (Winkler, 1980).

Determinants of elementary teacher absenteeism were examined in Queensland, Australia. Personnel records were obtained from Education Queensland's human resource information system for all teachers employed in the state system for the 2001 and 2002 school years and included 15,840 primary teachers and 9,655 secondary teachers. Absences were recorded on a quarterly basis, and the focus of this study was on reported illness. Teachers in Queensland were provided two weeks of sick leave annually that could be accumulated; however, no buy-back provision was proffered at retirement. Findings indicated very small effects with regard to school size and teacher quarterly absence rates (Bradley et al., 2007).

Principal Leadership Style

The research results...suggest that limitations in the tolerance toward absenteeism might be a positive factor in absenteeism prevention in schools.... Central is a directive principal who feels responsible for compliance with a clear set of rules and procedures that express a shared responsibility for the pupils and a low tolerance towards passing workload on to colleagues. (Imants & Van Zoelen, 1995, p. 85)

Principal leadership style has been found to impact teacher absenteeism. Higher teacher absenteeism in schools is associated with collegial relations and more friendly/informal leadership styles of principals that may make it easier for teachers to contact their supervisors and ask their colleagues for assistance during their absence. Low absenteeism schools were marked by a principal's more directive leadership style. A frequently cited study conducted in the Netherlands examined whether teacher absence in primary schools is related to school climate and teachers' sense of efficacy. From a sample of primary schools that participated in a national survey on absenteeism in education, ten comparable low-absenteeism and ten high-absenteeism primary schools were selected for the study. The Teachers' and Principals' Sense of Efficacy Scale was administered to 66 teachers. A MANOVA was utilized to determine that

leadership style and directivity of the principal were related to teacher absenteeism, i.e., a more directive leadership style lead to decreased teacher absence (Imants & Van Zoelen, 1995).

In a study conducted in the West Jerusalem district in 2002, ten teachers were randomly chosen from each of 20 randomly selected primary schools and asked to complete a survey that resulted in a response rate of 74%. Subsequent data consisting of a review of school personnel records and self-report measures of absenteeism were collected three months later. The initial survey consisted of three variables: (1) organizational commitment measured on an ascending 5-point Likert scale; (2) primary school climate measured on a scale that consisted of three dimensions of principal behavior (supportive, directive, and restrictive) and three dimensions of teacher behavior (collegial, intimate, and disengaged); and (3) the culture of absence scale that assessed the leniency toward voluntary absences on a 5-point Likert scale (Gaziel, 2004). Moderated hierarchical regression analyses indicated that restrictive principal and disengaged teacher behaviors that are indicative of a negative organizational climate resulted in higher rates of discretionary absences while supportive, directive principal leadership styles resulted in lower rates of teacher absences. While these findings support Imants and Van Zoelen (1995), it should be noted that these studies were conducted in diverse cultures in different decades.

The relationship between teachers and teams of teachers and the building principal can also influence student achievement. The effect of teacher social capital at the team level and human capital at the individual level on student achievement in math was examined. Classroom teachers in 202 elementary schools in a large, urban school district in the northeastern United States were surveyed in March 2004 (Pil & Leanna, 2009). The final sample included 24,187 students, 1,013 teachers, and 239 grade level teams. Each school organized teachers into grade-level teams with the expectation that they would work collaboratively on planning curriculum,

discussing instructional strategies, and analyzing student assessments. Strength of vertical ties with respect to teacher social capital and team social capital were explored. Vertical ties were measured by the number of times that a teacher or team exchanged information regarding math with the administrator as well as the reported closeness to the administrator. At both the individual and team levels, correlational analyses found vertical tie strength to be significantly related to student math performance. However, because the dynamics of the relationships between teachers and principals is not well-researched and typically focuses on principal leadership style, further research is needed to study the interaction between teachers and principals.

Workplace Climate/Absence Culture

What is most troublesome for educational policy makers is when classroom teachers at certain school sites begin to view their absenteeism from the classroom as an entitlement that goes with the teaching position. The sense of entitlement has enormous implications for the cost of instruction. (Bruno, 2002, p. 3)

Teacher absence can be examined from another perspective – that of absence culture. According to Miller (2012), “The professional culture of a school—the norms, formal and informal, that guide teachers’ behavior—has a facet related to absence. The first has to do with how similarly teachers behave to one another” (p. 5).

There are several types of absences in the workplace that are not heavily influenced by group behavior and include legitimate, earned leave such as a limited number of vacation or personal days, professional days, and bona fide sick leave. Other types of absence, however, are more likely to be culturally-influenced. Bogus sick days can be related to job satisfaction and involvement (Ejere, 2010; Wegge, Schmidt, Parkes & van Dick, 2007). Some teachers frequently utilize sick leave in blocks short enough to not require the medical certification required in some districts, indicative of an unwritten, accepted practice of allowing frequent, short-term teacher

absences. Timing of teacher absences has shown that more absences occur on Mondays and Fridays, and discretionary absence rates also show seasonal volatility, rising from fall to December and again from January to spring (Miller, 2008). Alternatively, the professional school culture can also pressure teachers to come to work while ill, a phenomenon that has been termed as presenteeism and which can negatively affect productivity (Gosselin, Lemyre, & Corneil, 2013; Johns, 2011).

While there is a body of international evidence that supports beneficial effects of vacation immediately thereafter on work productivity (Hakanen, Bakker, & Schaufeli, 2006; Kuhnel & Sonnentag, 2010; Westman & Etzion, 2001), the focus of this study will be on absence that occurs through the academic school year. While districts across the nation differ in contractual benefits with regard to vacation days, the vast majority of these days coincide with summer break or mandated holidays and account for a very small percentage of the days teachers are absent from the classroom. Thus, vacation leave and its impact on teachers and students will not be a primary focus of this literature review.

Teacher absence behavior can be influenced by workplace absence norms and group behavior. In a study conducted in Queensland, Australia, personnel records were obtained from Education Queensland's human resource information system for all teachers employed in the state system for the 2001 and 2002 school years and included 15,840 primary teachers and 9,655 secondary teachers. Absences were recorded on a quarterly basis, and the focus of this study was on reported illness. Teachers in Queensland were provided two weeks of sick leave annually that could be accumulated; however, no buy-back provision was proffered at retirement. Findings indicated that a teacher in the state system was likely to take an additional day of leave each quarter if a primary-level coworker took an average of 12 more days of leave or a secondary-

level coworker took 8 more days of leave. Teachers on temporary contracts took significantly fewer days than teachers with permanent contracts which could possibly be explained by their desire to achieve permanent status. Primary and secondary teachers who received higher pay for performing additional duties also had a lower absence rates than their peers. A plausible explanation for this decrease in absence could be that teachers with additional responsibilities simply could not afford to be gone due to time constraints (Bradley et al., 2007).

Workplace norms can also have an increasingly significant effect on teacher absence as retirement nears. An examination of two New York schools in 1986-87 supported the findings that some teachers who were approaching retirement age were more likely to be absent – even when induced to be present by monetary incentive plans – because of a workplace norm that they were “entitled” to this leave. This can be particularly true if a former principal behaved similarly before retirement. Teacher absences for the Sugar Hill and North Forests districts in New York were analyzed following the introduction of an attendance incentive plan. Findings indicated that in one particular elementary school in the North Forest district, older teachers near retirement age were the primary abusers of the policy even after the introduction of the attendance incentive plan. These teachers demonstrated a “use it or lose it” mentality in which there was a sense of entitlement regarding all of their sick leave since they had accumulated the maximum 200 days that the district compensated at retirement. Supporting absence behavior by a previous principal reinforced that mindset. Additional findings suggested that teachers only monitored and reported the absence behavior of colleagues if it directly impacted their workload. In these particular districts, there was little interdependence among elementary classroom teachers, causing these teachers to only report the absence behavior of specials teachers that created scheduling changes that affected them personally. Administrators suggested an informal

“code of silence” existed among classroom teachers regarding their colleagues’ absence behavior. Teachers felt no motivation to pressure their peers with regard to poor attendance because it did not directly impact them or their students. However, with increased accountability for student achievement, performance-based pay at a team-level, and the current emphasis on professional learning communities, this lack of interdependence may not be the norm in most buildings (Jacobson, 1990).

Higher teacher absenteeism in schools is positively associated with collegial relations, making it easier for teachers to ask their colleagues for assistance during their absence. A study conducted in the Netherlands examined whether teacher absence in primary schools was related to school climate and teachers’ sense of efficacy. From a sample of primary schools that participated in a national survey on absenteeism in education, ten comparable low-absenteeism and ten high-absenteeism primary schools were selected for the study. A school climate instrument was administered to 66 teachers. A MANOVA was utilized to determine that collegial relations were positively related to teacher absenteeism, i.e., more friendly and informal interactions lead to increased teacher absence. The Teachers’ and Principals’ Sense of Efficacy Scale was also administered. Utilizing a factor analysis, results suggested that teachers with low absence rates scored significantly higher on outcome expectancy scores, suggesting that teachers who believed they had an impact on student learning and adult professional behavior were absent less (Imants & Van Zoelen, 1995).

Another international study on climate and culture and the potential effects on teacher attendance was conducted in the West Jerusalem district in 2002. Ten teachers were randomly chosen from each of 20 randomly selected primary schools and asked to complete a questionnaire that resulted in a response rate of 74%. Subsequent data were collected three

months later, consisting of objective and subjective measures of absenteeism that examined organizational commitment; primary school climate; and the culture of absence scale. Utilizing a regression analysis, results indicated that schools with a negative organizational climate had significantly more voluntary absences (vacation and uncertified illness) during the school year in question, indicating that absence may be related to acceptable workplace absence norms rather than workplace dissatisfaction (Gaziel, 2004).

An analysis of 5,189 teachers in a large, urban school district in the northern United States for the 2001-2005 school years examined school-wide discretionary absence trends by creating school profiles of discretionary absence behavior. Profiles of teacher absence behavior were created for 106 buildings by examining 130,747 dates and excuse codes. Profiles indicated a seasonal trend in discretionary absence rates and markedly different profiles for buildings operating within the same districts even after controlling for teacher characteristics. These differences suggest that some schools within the study cultivate an absence culture wherein peer pressure can encourage or discourage trivial absences (Miller, 2008).

While the majority of the cited studies were conducted outside of the United States (Bradley et al., 2007; Gaziel, 2004; Imants & Van Zoelen, 1995), it is evident that informal standards that influence teacher attendance exist across cultures. While absence culture is predominantly guided by informal norms present in a building and difficult to document, it bears examination in greater detail in buildings, districts, and countries wherein teacher discretionary absence rates are elevated.

Organizational Policies

Policies that create or increase incentives to reduce the number of absences teachers take can be advocated on two fronts. From an efficiency standpoint, these policies have the potential to simultaneously raise teachers' expected compensation and reduce districts' expected costs. From an equity perspective, policies that reduce absences have

the potential to reduce one of the many resource disparities between high- and low-poverty schools. (Clotfelter et al., 2009, p. 141)

Teacher absences can be affected by district attendance policies. Studies regarding the accumulation of and pay-out provisions of sick days (Clotfelter et al., 1990; Ehrenberg et al., 1991; Jacobson, 1990; Winkler, 1980); utilization of sick banks (Pitkoff, 1993); contractual number of paid absences provided per year (Ehrenberg et al., 1991; Winkler, 1980); and absence reporting procedures (Winkler, 1990) have all shown to influence teacher absenteeism rates.

According to Clotfelter et al. (2009), the utilization of discretionary absences is “price elastic” and worthy of examination from an economic standpoint. Teacher absences in North Carolina public schools were examined for the time period 1994-2004, utilizing data collected from the North Carolina Department of Public Instruction. Sick leave could be accumulated without limit, but, upon retirement, all sick leave days were converted to service credit, ultimately resulting in higher pension benefits. Personal and vacation leaves were also offered, with vacation leave benefits increasing with experience. Teachers could take 10 sick days per year without penalty and an additional 20 sick days per year at a cost of \$50 per day. Utilizing a Cox proportional hazard model, findings indicated that implementing a \$50 penalty per sick day increased the likelihood of no additional days being taken by 16% as compared to no penalty being assessed. If the \$50 penalty applied to all sick days taken, mean annual absences would fall from 7.0 to 5.9 days per teacher (Clotfelter et al., 2009).

School district leave policies, teacher absenteeism, and student achievement were examined in New York State. Surveys were sent to all 722 public school superintendents (excluding New York City) in October 1987. The survey requested teacher leave usage for the 1986-87 school year. Responses were received from 419 districts. Data regarding leave policies were obtained from contracts returned by over 100 superintendents as well as from teacher

contracts on file at the New York State Public Employment Relations Board (PERB). Together, contract information for 545 school districts was compiled. Findings indicated that leave policies influenced teacher usage. If more annual leave days were permitted, teachers utilized those days. If sick leave banks were provided for teachers who had expended all of their own sick leave, teachers averaged an additional day of leave. If bereavement leave was provided but not deducted from other leave categories, more annual leave days were utilized. A smaller number of contractually allotted days for professional, visitation, and conference attendance resulted in higher usage of leave days. This incongruous result is hypothesized by researchers to be a result of teachers with limitations in the professional leave category feeling treated less as professionals and more likely to use additional sick days for non-legitimate “rest and recuperation” purposes. Econometric analyses indicated that increasing the per diem buyout of unused days at retirement by \$50 would decrease annual leave by approximately one-half day. By increasing the number of unused days that could be accumulated by 30, annual leave would decrease by approximately one day (Ehrenberg et al., 1991).

Teacher absences for the Sugar Hill district in New York were analyzed following the introduction of an attendance incentive plan in 1986-87. The district utilized funds from the Excellence in Teaching (EIT) reform initiative to create a pari-mutuel pool. For every absence less than seven (the mean number of district absences in the previous year), a teacher became eligible for one share in the pool. A perfect attendance bonus was also offered. The financial attendance incentive produced significant results for the year with mean absences declining 1.9 days from the previous year. More notably, perfect attendance rose from 8% to 34%. However, due to an impasse between the teacher union and administration during collective bargaining, the plan was dropped for the 1987-88 school year so no long-term data is available. In the North

Forest district that had a noted teacher attendance problem, a different incentive program was offered that rewarded improved group attendance. Ironically, the incentive was an additional three sick days per year over the current contractual benefit of 15-18 days per year if the district's overall 1988-89 absence rate were decreased by 25%. Preliminary findings indicated that teachers with high attendance felt they had little influence over their colleagues -- especially those in another building -- while older teachers near retirement age continued to be the primary abusers of the policy even after the introduction of the attendance incentive plan. These teachers demonstrated a "use it or lose it" mentality in which there was a sense of entitlement regarding all of their sick leave since they had accumulated the maximum 200 days that the district compensates at retirement (Jacobson, 1990).

The effects of sick-leave policy variables on short-term public school teacher absenteeism were examined with an underlying assumption that absenteeism due to illness is partially abused by healthy employees. Data from California and Wisconsin were analyzed to determine the effectiveness of alternative sick leave policies and to identify those policies that preclude this sick-leave abuse. Ordinary least squares were used to estimate the regression model. No statistical significance was found if teachers had to relinquish their per diem salary should they exhaust all sick leave. However, the other two policy variables were statistically significant. Teachers covered by an income protection plan had increases in short-term absences of 0.007 and Monday and Friday absences of 0.003 annually. If teacher were required to provide proof of illness, 0.27 fewer Monday and Friday absences were likely to occur. Additionally, if a teacher had to report absences directly to the principal, .68 fewer short-term absences and .50 fewer Monday and Friday absences were likely to occur (Winkler, 1980).

School organizational variables and teacher absenteeism were explored in 17 Brooklyn high schools in the 1986-87 school year. Personnel records of 2,988 school employees were accessed in order to examine average school employee absenteeism rates and incidence of absenteeism. Pearson product correlation coefficients were calculated between school profile variables and average absenteeism rates and between individual teacher program variables and absenteeism incidence. Findings indicated that almost one-fourth of teachers exceeded their contractual leave allowance and were absent 10+ days. Almost 10 percent of school employees had no accumulated sick leave, and two-thirds of these employees actually owed days to the sick leave bank. Additionally, as employees neared the 200 sick-day accumulation limit that was eligible for half pay upon retirement, there was a rise in usage of days, indicating a “use it or lose it” mentality (Pitkoff, 1993).

States, public school districts, and charter schools employ some combination of policy and controls with regard to teacher absence. However, these policies and controls are far from uniform and some are so overly permissive in nature as to actually make absenteeism more pervasive -- contributing to increased financial costs, decreased student achievement, and inequities regarding the serving of low-income families (Miller, 2012). More attention should be given to further policy research and to implementing policies and procedures that have been shown to positively influence teacher attendance. Tracking teacher absence rates by buildings and ranking by states is an important first step (Office for Civil Rights, 2012).

Student Outcomes Related to Teacher Absence

One of the seminal research studies that specifically addressed teacher absence and the effect of lost student-teacher contact on student achievement utilized data from Indiana and Wyoming (Woods & Montagno, 1997). The sample included 817 third-grade students and 45

teachers. Scores from the Iowa Test of Basic Skills were obtained for the same students in both third and fourth grades, resulting in outcome changes in grade equivalency and percentile rank. Analyses of variance indicated that teachers with low absences had students with positive gains in percentile ranking and larger improvements in grade equivalency than students with teachers who experienced higher rates of absences.

When examining the impact of teacher attendance on student achievement through fixed effect models, similar results were obtained for math and reading. Relevant teacher demographic and absence data including dates and reasons for teacher absences were acquired from the North Carolina Department of Public Instruction, along with teacher records from the North Carolina Education Research Data Center for the school years 1994-2004, resulting in a sample of over 492,000 observations. Findings indicated that ten additional days of absence were associated with a 1.7% of a standard deviation decrease in math and a 0.9% standard deviation decrease in reading (Clotfelter et al., 2009).

An analysis of 5,189 teachers in a large, urban school district in the northern United States for the 2001-2005 school years examined school-wide discretionary absence trends by creating school profiles of discretionary absence behavior. Utilizing data from 144 teachers who taught fourth-grade in more than one year, OLS-estimate of the impact of teacher absences prior to testing indicated that for every ten days of teacher absence, student achievement was reduced by 3.3% of a standard deviation. The larger reduction in student achievement as compared to Clotfelter et al. (2009) could potentially be explained in the larger percentage of socioeconomically disadvantaged students involved in the sample (Miller, 2008).

The extent that teacher absences and student achievement were related across elementary, middle, and high schools and academic subject areas was examined in a large public school

system. Data for a single year were obtained from 81,927 student records and 2,934 teacher records from 165 schools. All documented leaves were combined to create a measure of teacher absence. Student performance was measured by end-of-grade or end-of-course standardized test scores. Hierarchical linear modeling was utilized to examine the relationship between teacher absence and student achievement between and within schools with differentiated levels of teacher absences. Findings suggested that when teachers were absent more, students scored lower on standardized tests. This effect was stronger in a building where overall teacher absence rates were low but isolated incidents of high absenteeism occurred within classrooms (Tingle et al., 2012).

Teacher absence rates for grades 1-4 and student achievement on the Missouri Assessment Program (MAP) and Terra Nova tests for grades 3-4 were examined in a St. Louis County school district for the 2002-2005 school years. An analysis of variance utilized to investigate the relationship between teacher absences and student achievement found that there was no statistical significance between student scores and teacher absences for communication arts and mathematics as measured by the MAP assessment or reading and mathematics as measured by the Terra Nova tests. However, the researcher speculated that a high quality of substitute teachers; inclusion of planned absences for which teachers thoroughly prepared; and the decision to not categorize number of absences may have attributed to the lack of significance (Clay, 2007).

The relationship between fourth-grade student achievement in math and teacher absenteeism for the 2010-11 school year was examined for nine school districts in northern Louisiana. Archival data were collected from the personnel offices of each district for all 97 fourth-grade teachers employed in the districts. Student outcome data were collected from the

Louisiana Department of Education and consisted of fourth-grade mathematics achievement scores from the Louisiana Education Assessment Program (LEAP). When examining whether significant differences existed on LEAP scores based upon four categories of teacher absence (<5; 5-10; 11-14; and >14 days), the results of the ANOVA were not significant. The researcher hypothesized that the use of highly qualified substitute teachers may have lessened the impact of teacher absence as well as using the average LEAP scores for the building if classroom scores were unavailable (which was the case for 53 of 97 participants) (Brouillette, 2012).

Substitute Teachers

Not all states require that substitutes have a valid teaching license in order to be placed in a classroom. Many districts provide little training and offer no professional development opportunities to substitute teachers. Several studies have examined the effect of uncertified substitutes on classroom achievement and have found, as expected, that having a certified substitute teacher (Clotfelter et al., 2009) or a trained substitute who participates in building-level professional development (Glatfelter, 2006) does lessen the impact of the absence of the regular classroom teacher on student achievement.

Relevant teacher demographic and absence data including dates and reasons for teacher absences were acquired from the North Carolina Department of Public Instruction, along with teacher records from the North Carolina Education Research Data Center for the school years 1994-2004. The majority of students in grades 4 and 5 were matched with their math and English teachers that allowed for the comparison of student achievement with differing numbers of sick days taken by teachers, resulting in roughly one million observations. School, teacher, and student characteristics were held constant. Ordinary least square regressions were utilized. Every ten days of teacher absence were associated with significant declines in both reading and

math. However, when imposing teacher fixed effects with regard to the quality of the substitute teacher, estimated coefficients indicated smaller effects. While students taught by uncertified substitutes showed a greater decline in both reading and math, only math was statistically significant. Students who were taught by a certified substitute had significantly less decline in achievement in math than their peers whose teachers' absences were covered by uncertified substitutes (Clotfelter et al., 2009).

The perceptions of administrators, classroom teachers and substitute teachers with regard to the effectiveness of substitute teachers were examined through interviews and surveys conducted in the Deerfield District in California in 2005. Glatfelter (2006) asserted that students would benefit academically if professional, collegial relationships were established between the school staff and substitute teachers (Tippetts, 2002). Substitute teachers should also have access to district professional development and mentoring opportunities that increase knowledge and skills regarding classroom management, curriculum, and instruction.

Summary

With increased expectations and greater accountability regarding student achievement at the national and state levels, all facets of education must be examined in an effort to increase student outcomes. One area that is beginning to receive increased scrutiny and has been found to negatively impact student achievement is absenteeism rates of students and teachers. Imants and Van Zoelen (1995) asserted that schools in need of assistance often have persistently high rates of teacher absenteeism. When a teacher is chronically absent, a negative impact on student attendance and achievement has been established even after controlling for other achievement factors such as teacher and student demographics and organizational variables. Student and teacher absenteeism deserves closer analysis, especially in the lower elementary grades when

teachers have the fleeting opportunity to establish caring relationships with students that set the foundation for student success by influencing achievement trajectories (Hamre & Pianta, 2001) and impacting patterns of student attendance.

This literature review discussed the impact of teacher demographics and organizational variables on teacher attendance. Literature regarding the extent to which teacher absenteeism is connected to student achievement was examined. In addition, student demographics related to attendance and outcomes were explored. Finally, the impact of substitute teachers and organizational factors on student achievement were also examined.

A gap in the literature was identified with regard to the relationship between student and teacher absenteeism and its impact on student achievement. While studies have explored the impact of student-teacher relationships on student outcomes or individually explored the impact of student or teacher absence on student outcomes, no identified studies utilized attachment theory as a framework for exploring the relationship between teacher and student absences and their combined impact on student outcomes. Figure 2.1 identifies this gap and the basis for the selection of the conceptual framework and variables identified in Chapter 3.

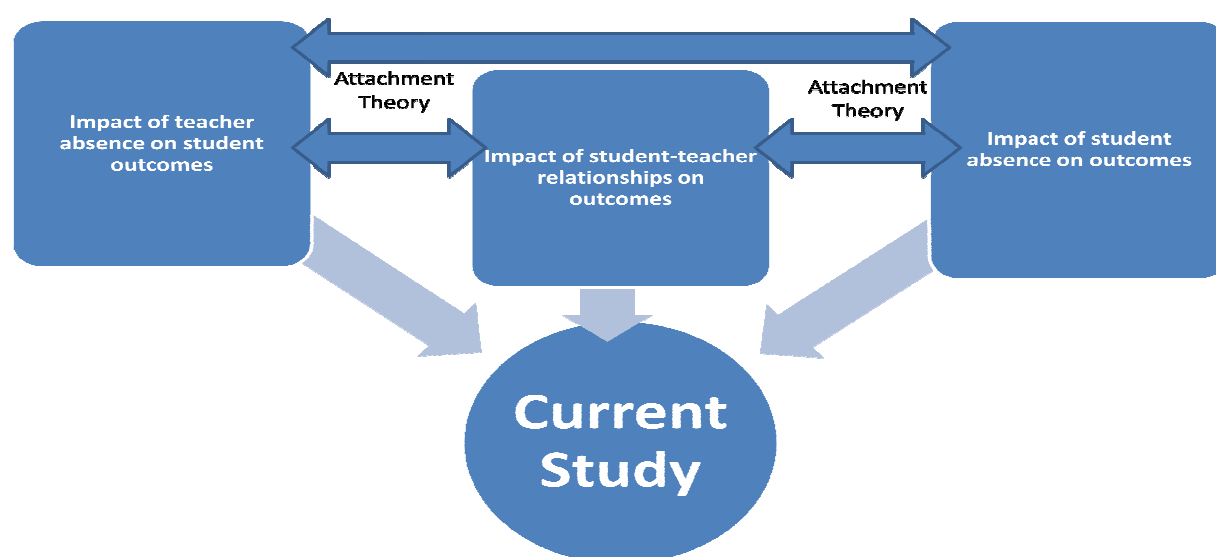


Figure 2.1. Model of Conceptual Framework and Connection to Literature Gap

The next chapter will provide the methodology and present the specific approach the researcher will follow to determine if there is a relationship between student and teacher attendance and elementary reading achievement in a Midwestern school district.

CHAPTER 3

METHODOLOGY

The purpose of this study is to examine the impact of annual student and teacher absences on elementary reading outcomes by analyzing year-end DIBELS Next composite scores for kindergarten-third graders and to examine the cumulative effects of student and teacher absences on Iowa Assessment reading standard scores for third-grade students. Having a deeper understanding of the relationship between student outcomes and student and teacher absences can inform policymakers, educators, and researchers as these groups identify components of the educational system that can potentially be manipulated in order to positively impact student achievement.

This chapter provides information on the philosophical framework of this research including an overview of the research questions, research design, methodological approach, setting, population and sample, data collection, variables, and data analyses. Limitations and delimitations are also discussed.

Research Design

This study will be conducted with a quantitative methodological approach, grounded in a postpositivist philosophical foundation. According to Creswell (2009), “Postpositivists hold a deterministic philosophy in which causes probably determine effects or outcomes. Thus the problems studied by postpositivists reflect the need to identify and assess the causes that influence outcomes...” (p. 7). This study adheres to the scientific method by identifying a theory, collecting and analyzing data to support or refute the theory, and then suggesting future research based upon the findings. Because this study focuses on potential causes that influence reading outcomes, the postpositivist worldview and its underlying assumptions are appropriate.

Phillips and Burbules (2000) summarize the fundamental assumptions of the postpositivist stance:

1. Absolute truth cannot be found; therefore, a hypothesis cannot be proven – only rejected;
2. Research begins by making a hypothesis and then, based upon data analysis, honing or abandoning the claim;
3. Knowledge is created from the researcher's gathering of participant data utilizing specific data-collection measures;
4. Hypotheses/research questions are developed to explain a situation or relationship between two or more variables; and
5. Researcher objectivity is paramount in order to conduct valid and reliable quantitative research.

Methodological Approach

The goal of this study will be to collect and analyze existing school-level data to determine whether student and teacher absences have an effect on elementary student reading outcomes; therefore, a non-experimental, correlational/causal-comparative research methodology is appropriate. A correlational research design is utilized to study the relationship between two or more variables that have not been manipulated (Vogt & Johnson, 2011). According to Salkind (2010):

A causal-comparative design is a research design that seeks to find relationships between independent and dependent variables after an action or event has already occurred. The researcher's goal is to determine whether the independent variable affected the outcome...by comparing two or more groups of individuals (p. 124).

Research Questions

The following four research questions will guide this quantitative study:

1. What are the demographic characteristics of the elementary students who participated in the study?
2. Is there a statistically significant difference between the number of days a teacher is absent and a student's reading proficiency in a) kindergarten; b) first grade; c) second grade; and d) third grade?
3. To what extent do a student's gender, socioeconomic status, ethnicity, absences, and teacher's absences predict reading proficiency at a) kindergarten; b) first grade; c) second grade; and d) third grade?
4. To what extent do a student's gender, socioeconomic status, ethnicity, cumulative absences, and cumulative teacher absences predict reading proficiency at third grade?

Research Setting

The research setting was based in the PK-3 building of a suburban Midwestern district that has one PK-3 elementary school; one 4-5 upper elementary school located in another town; one 6-8 middle school; and one 9-12 high school. The PK-3 building is served by two Title 1 reading teachers as well as two counselors who regularly track and work with at-risk students and families to improve attendance.

In the Midwestern state in which this study was conducted, there is a statewide voluntary preschool program for four-year-olds. While the program structure varies slightly from district to district, the preschool in the district involved in this study is provided at no cost to families and provides free transportation. Similar to the county average of 88.1% of 2012-13 kindergarten students whose parents reported them as having had a preschool experience, this

district had 88.9% of kindergarten students' parents reporting a preschool experience for their children. However, there is no delineation between a quality preschool experience and a preschool experience. No public preschool is provided for three-year-old students in this district unless they qualify under the guidelines of special education, and the nearest Head Start opportunity for younger children from impoverished families is approximately 20 miles away with no district transportation provided.

Approximately 93% of the K-3 classroom teachers are married females under 40 years of age. Over 66% of teachers have children under the age of 6, and the majority of teachers have a Master's degree (56%) and a reading endorsement (63%). Years of teaching experience are more distributed with 25.9% of staff with 1-3 years of experience; 29.6% with 4-10 years; 40.7% with 11-20 years; and 3.7% with more than 20 years of teaching experience. Due to several maternity leaves, the average number of days of schools missed for the 2012-13 school year by K-3 classroom teachers was 16.75 ($SD = 12.15$) days. Over 65% of the teachers were absent from the classroom for more than 10 days which is considered a "leading indicator" measure according to the U.S. Department of Education with regard to the relationship between teacher absence and student achievement. This is high in comparison to a national average of 36.7% of elementary teachers who missed more than 10 days during the 2009-10 school year (Miller, 2012). However, the two percentages were calculated in different years and based upon different guidelines, with the district's absences including leaves for professional development while the Civil Rights Data Collection survey dataset excluded those days.

Substitutes in this particular state can be licensed to substitute at the elementary level in several ways. A current teaching license from this state or a substitute license is required. Teacher licensure can be obtained through the completion of a teacher preparation program

(Bachelor's or Master's), through the Teacher Intern Program, or by meeting the requirements to convert another state's teaching license. A substitute license requires that at some prior time a teaching license for this particular state was issued in the applicant's name.

Over the course of the last two years, 25 substitutes acted in the absence of K-3 classroom teachers for 5 or more days in this building. The majority of substitutes (80%) held elementary certification while 16% held a Substitute License or a K-12 Art/Music License. When in short demand, elementary teacher absences were occasionally filled with a secondary-certified substitute (2%). Only 28% of substitutes held a reading endorsement. This building relied heavily on retired elementary teachers to conduct maternity leaves. While only 24% of the substitutes were retired elementary teachers, they averaged 47.75 days of substitute teaching ($SD = 28.75$) compared to non-retired teachers who averaged 28.97 days ($SD = 34.13$) during the 2011-12 and 2012-13 school years.

Sample and Participants

Existing student reading and attendance data was examined for 981 students who attended a Midwestern K-3 elementary school from August 2008 through May 2013. This mid-sized school district has an approximate enrollment of 2,000 students and is located in a suburban area comprised of predominantly Caucasian, middle-class, working families. According to US Census Bureau (2012) with regard to ethnicity, the county in which the district is located is 97.5% Caucasian while the state average is 92.8%. With minority percentages ranging from 9.1% to 14.6% among the grade levels, the building is slightly more diverse than the county/State in which the district operates. The district percentage of students eligible for free/reduced lunch in 2012-13 was 28% which is lower than the State's most recent average of 40.3% (Iowa Department of Education, 2012). However, the district percentage has been slowly

increasing the past two years, with more significant percentages found at the lower elementary grades. The percentage of students in grades kindergarten-third who qualified for free/reduced lunch at the end of the 2012-2013 school year was 41% which is in line with the State average. The mobility rate of students transferring in or out of the building during the 2012-13 school year was approximately 6%; however, students who were not here for a full academic year were not included in this study. The incidence of English Language Learners in the building was well below the state and national averages, reflecting less than 1 percent of the student population. A frequency distribution of participant demographic characteristics for each grade level is reported in Table 3.1.

Table 3.1

Frequency Distribution for Participant Demographics – Ethnicity, Gender, Socioeconomic Status

	Kindergarten (n = 253)		First Grade (n = 254)		Second Grade (n = 243)		Third Grade (n = 231)	
	N	%	N	%	%	%	N	%
Ethnicity								
Majority	221	87.4%	217	85.4%	213	87.7%	210	90.9%
Minority	32	12.6%	37	14.6%	30	12.3%	21	9.1%
Gender								
Male	138	54.5%	126	49.6%	117	48.1%	108	46.8%
Female	115	45.5%	128	50.4%	126	51.9%	123	53.2%
Socioeconomic Status								
Does not qualify for free/reduced lunch	189	74.7%	178	70.1%	181	74.5%	177	76.6%
Qualifies for free/reduced lunch	64	25.3%	76	29.9%	62	25.5%	54	23.4%

Data Collection

Individual student attendance data for each year were obtained from the district's electronic student data system. Iowa Assessment reading data were taken from the district's

secure data warehouse system. DIBELS Next composite scores and student demographic data were taken from the password-protected DIBELS Next website where the district stores scores on all assessed DIBELS Next literacy measures. All student identifiers were removed after the attendance and assessment data were matched. For the regression and correlation analyses, list-wise deletion was employed, omitting cases with missing data on the variables being studied. In addition, all students receiving special education services in the area of reading were omitted from this study to reduce the influence of students with identified reading disabilities. Matched teacher absence data for the years examined in this study were made available from the district's personnel database. All teacher identifiers were removed after the data was obtained from the local school district and matched with individual students.

Approval for this study was obtained through the University Institutional Review Board for Human Subjects Research.

Variables

Through the analyses of pre-existing data, this study examined the impact of student and teacher absences and the potential predictors of student reading proficiency in kindergarten-third grades. Utilizing attachment theory as a basis from which to examine pre-existing data enabled this study to predict demographic and building-level factors that influence reading outcomes. The independent variables included student gender, socioeconomic status, ethnicity, student absences, and teacher absences. The dependent variables in this study included spring DIBELS Next composite scores at each grade level and Iowa Assessment reading standard scores for third-grade students.

Independent Variables

According to Creswell (2009), “independent variables are those that (probably) cause, influence, or affect outcomes” (p. 50). The independent variables in this study included gender, socioeconomic status, ethnicity, and student and teacher absences.

Gender. Gender was measured by male (coded = 1) and female (coded = 2) as collected from the district’s student database.

Socioeconomic Status. Socioeconomic status of the child was measured by whether students do not qualify (coded = 0) or do qualify for the national free/reduced lunch program based upon parental income guidelines (coded = 1) as taken from the district’s student database.

Ethnicity. Ethnicity of the child was taken from the district’s student database and used to create a dichotomous variable: Minority (coded = 0) and Majority (coded = 1). The minority category consisted of Black, Hispanic, Asian, and Multi-racial. The majority category included White.

Student Absences. Student absences were defined by the total number of school days missed for any reason during an academic year and collected from the district’s student database.

Teacher Absences. Teacher absences were defined by the total number of contract days missed during the school year for any reason. For research question three, total absences were categorized into five levels: 0-4 absences coded = 1; 5-9 absences coded = 2; 10-19 absences coded = 3; 20-34 absences coded = 4; and 35+ absences coded = 5. The Office of Civil Rights is beginning to track teacher absences above 10 days which would include levels 3-5. Teachers who have utilized maternity/FMLA leave in this particular district typically fell into levels 4-5. For research question four, cumulative teacher absences for individual students were matched and calculated.

Dependent Variables

According to Creswell (2009), “dependent variables are those that depend on the independent variables; they are the outcomes or results of the influence of the independent variables” (p. 50). The dependent variables for the ANOVA and regression analyses that will be utilized in this study are spring DIBELS Next Composite Scores and Iowa Assessment reading comprehension scale scores.

DIBELS Next Composite Score. According to Kaminski and Good (2011), “The DIBELS Composite Score is a combination of multiple DIBELS scores and provides the best overall estimate of the student’s early literacy skills and/or reading proficiency” (p. 212). Validity of the DIBELS Next Composite Score is strong based upon evidence for the predictive validity with the GRADE Total Test. It also explains more variance in reading outcomes than does oral reading fluency measures alone (Powell-Smith et al., 2012). Assessment Accuracy checklists for individual DIBELS Next measures are attached as Appendix A (Kaminski et al., 2011). DIBELS Next Composite Scores for the spring assessment period are calculated for each grade level based on the measures indicated and weighted in Table 3.2.

Table 3.2

DIBELS Next Composite Score Calculations

Grade Level	LNF Score	PSF Score	NWF CLS Score	NWF WWR Score	DORF Words Correct	DORF Accuracy Value	Retell	DAZE Adjusted
Kindergarten	X	X	X	X2	X	X		
1 st Grade					X	X		
2 nd Grade					X	X	X2	
3 rd Grade					X	X	X2	X4

DIBELS Next Essential Workshop, Kaminski & Good (2011)

Iowa Assessment Reading Comprehension Standard Score. Standard scores are continuous across all levels and forms of a specific test. Because they are built on equal-interval scales, the magnitude of a given difference between two scores represents the same amount of

difference in performance wherever it occurs on the scale (Iowa Testing Programs, 2012). “The current vertical scale, developed by Iowa Testing Programs in 1992, is psychometrically sound, has been used extensively at the district and state level and meets the technical requirements of large scale assessment” (Welch & Dunbar, 2011).

Summary of Variables

Table 3.3 provides a summary of the variables that will be utilized for analysis in this study.

Table 3.3

Review of Measurement Variables

Variable	Type	Description (Measured by)
Gender	IV	Dichotomous variable: 1 = male; 2 = female
Socioeconomic status	IV	Dichotomous variable: 0 = not qualifying for free/reduced lunch; 1 = qualifying for free/reduced lunch
Race/ethnicity	IV	Recoded to dichotomous variable: 0 = minority; 1 = majority
Student absences	IV	Continuous variable
Teacher absences (question 2)	IV	Discrete variable: 1 = 0-4; 2 = 5-9; 3 = 10-19; 4 = 20-34; 5 = 35+
Teacher absences (questions 3 and 4)	IV	Continuous variable
Reading proficiency/IA Assessment	DV	Continuous variable
Reading proficiency/DIBELS composite	DV	Continuous variable

Data Analysis

The data were analyzed on multiple levels using both descriptive and inferential statistical analyses to address the research questions defined in this study. This section describes the selected analyses that were utilized to address each of the research questions.

Descriptive Statistical Analysis

According to Tabachnick and Fidell (2007), “Descriptive statistics describe samples of subjects in terms of variables or combinations of variables” (p. 7). Using SPSS v.20 software, means, standard deviations, and frequencies were calculated and reported on all independent and dependent variables identified in Table 3.2. Descriptive statistics were used to answer research question 1.

Inferential Statistical Analysis

Inferential statistics “allow one to draw conclusions or inferences from data. This means coming to conclusions about a population on the basis of data describing a sample” (Vogt & Johnson, 2011, p. 180). Inferential analyses that were conducted in this study included the Pearson correlation, One-way Analysis of Variance (ANOVA), and hierarchical regressions.

Correlations. Green and Salkind (2011) explain that the “Pearson product-moment correlation coefficient (r) assesses the degree that quantitative variables are linearly related in a sample” (p. 257). Assumptions underlying the significance test of a Pearson correlation coefficient between two variables include the following:

1. Variables are bivariate normally distributed. A linear relationship will be formed if this assumption is met.
2. Random sample of the population is represented by the cases, with variable scores of each case independent of variable scores on other cases. A correlation significance test should not be computed if this assumption cannot be met.

Pearson correlation coefficients are reported as effect sizes, ranging from -1 to +1, and were represented in a correlation matrix comprised of all the study variables. A Bonferroni

approach was utilized to compute a corrected significance level to control for Type I errors. According to Green and Salkind (2011), this “requires dividing .05 by the number of computed correlations. A correlation coefficient would not be significant unless its p value is less than the corrected significance level” (p. 261).

One-Way Analysis of Variance (ANOVA). According to Tabachnick and Fidell (2007), “Analysis of variance is used to compare two or more means to see if there are any statistically significant differences among them” (p. 37). In this study, an ANOVA was conducted to examine the differences in student reading outcomes based upon categories of teacher absences. Green and Salkind (2011) explain the following assumptions that underlie a One-Way ANOVA:

1. There is a normal distribution of the dependent variable for each of the samples as defined by the predefined factor levels;
2. Dependent variable variances are the same for all samples; and
3. Samples are composed of random cases and scores on the test variable are not related to one another.

An effect size index, η^2 (eta square), was calculated to determine the proportion of variance of the dependent variable that is related to the factor. Eta squares will range from 0 to 1. According to Green and Salkind (2011), an η^2 value of 0 indicates that there are no differences in the mean scores across the various groups being analyzed; a value of 1 indicates there are differences between two or more of the means on the dependent variable with no differences on the dependent variable scores within groups – a perfect replication.

Sequential Multiple regression. According to Tabachnick and Fidell (2007), “IVs enter the equation in an order specified by the researcher. Each IV (or set of IVs) is assessed in terms

of what it adds to the equation at its own point of entry” (p. 138). Multiple regression analyses with a sequential hierarchical approach were conducted to answer research questions three and four. A correlation matrix was constructed for all variables entered in the regression analyses, and data were screened to meet assumptions for regression analysis.

“The primary goal of regression analysis is usually to investigate the relationship between a DV and several IVs” (Tabachnik and Fidell, 2007, p. 118). Regression is based on a linear relationship and in a multiple regression the model equation can be expressed as:

$$Y' = A + B_1X_1 + B_2X_2...$$

where Y' = is the predicted value of the dependent (outcome) variable, B = the unstandardized regression coefficient, X = the independent (predictor) variable, and A = the Y intercept.

Additional predictor variables can be added to the equation as long as minimum sample requirements are met. Tabachnick and Fidell (2007) suggest a minimum sample size based on the following equation:

$$8m+50 = n$$

where m = the number of independent (predictor variables). In this study, the maximum number of predictor variables used in a regression model is five. Inserting five to replace m in the above equation and conducting the calculation produces a minimum sample size of $n = 90$. In this study, the sample size will be greater than 90, thus fulfilling Tabachnick and Fidell’s (2007) minimum sample guidelines.

Regression Models and Theoretical Connection

In this section the research questions that were analyzed using a multiple regression statistical technique are described and the resulting regression model equations are shown.

A sequential hierarchical approach was used to answer research questions 3 and 4. In this approach, independent variables enter the equation in an order determined by the researcher (Tabachnik & Fidell, 2007). Independent variables were entered in three blocks for the regression models. The first block entered contained the variables of gender, ethnicity, and socioeconomic status. These variables accounted for their predictive value first in determining how much variance can be accounted for by these variables. Change can be made more easily for the variables in the second and third blocks. Student and teacher absences were entered in separate blocks to determine the individual influence of these factors on student reading outcomes. Guided by attachment theory's premise that student-teacher relationships can be adversely impacted by absences (Bergin & Bergin, 2009; Birch & Ladd, 1997; O'Connor & McCartney, 2007; Pianta et al., 2008) and by controlling for those factors that are unable to be manipulated, this study isolated student and teacher absences in order to determine their influence on student reading outcomes.

Regression model for reading proficiency – research question three. To what extent do a student's gender, socioeconomic status, ethnicity, absences, and teacher absences predict *reading proficiency* at a) kindergarten, b) first grade, c) second grade, and d) third grade?

Research question three was answered by running a sequential hierarchical regression analysis at each grade level on the following model where *reading proficiency* = (*gender* + *socioeconomic status* + *ethnicity*) + (*student absence*) + (*teacher absence*).

Regression model for reading proficiency – research question four. To what extent do a student's gender, socioeconomic status, ethnicity, cumulative absences, and cumulative teacher absences predict *reading proficiency* at third-grade? Research question four was answered by running a sequential hierarchical regression analysis on the following model where

reading proficiency = (gender + socioeconomic status + ethnicity) + (K-3 cumulative student absences) + (K-3 cumulative matched teacher absences).

Delimitations

This study was delimited to K-3 elementary students who exclusively attended one suburban Midwestern school district from 2008-2013. Teacher attendance data were delimited to classroom teachers and did not account for student teachers during the school year or the absences of supporting certified staff such as Title 1 reading teachers or school counselors. Types of absences were not distinguished nor were length of absences. Classroom variables and instructional quality were not addressed in this study.

Limitations

This study focused on a limited convenience sample in a suburban Midwestern district with only one lower elementary school. Also, quality and certification of substitute teachers and classroom teachers were not addressed; thus, results may not be generalizable to other K-3 students.

Standardized reading assessments did not account for individual student growth during the school year or prior reading performance. Standardized assessments were also not examined for potential group bias which could result in information, words, or pictures favoring one racial, ethnic, socioeconomic, or gender group (Mertler, 2007). In addition, since a standardized assessment provides only a snapshot of a student's current performance that could be subject to mitigating factors, high-stakes systemic decisions should not be based on the performance on one standardized assessment.

DIBELS were designed to be *indicators* of five key early literacy skills that are predictive of later reading achievement. When aggregated, the data provide a broad snapshot of

general program functioning and are an *indicator* of systems-wide successes/needs....The importance of using other relevant information, including multiple forms of assessment, and viewing assessment results within the context of the school cannot be overstated.

(Kaminski & Good, 2007, p. 2)

Future research should be expanded to include rural and urban districts and upper elementary and middle school students in order to examine the impact of student and teacher absences on student achievement at those grade levels. Math outcomes could also be examined.

Summary

This chapter described the methodological approach used in this research study. Philosophical assumptions, research design and questions, and independent and dependent variables were reviewed. Data analysis procedures for each research question were also stated. Study delimitations and limitations were examined. Chapter 4 presents the results of the data analyses.

CHAPTER 4

RESULTS

The purpose of this study was to examine the effects of student and teacher absences on elementary student reading achievement. Attachment theory was utilized as a conceptual framework to explain the attachment relationships formed between elementary students and their classroom teachers and the hypothesized negative impact that either excessive student and/or teacher absences could have on student reading achievement. Following a thorough review of the literature with regard to factors that influence student achievement, student-level variables related to gender, ethnicity, and socioeconomic status were identified and controlled for during the analyses.

This chapter reports results of the data analyses that address each of the four research questions and is divided into six sections. The first section describes the procedures used for data screening and the methods utilized to ensure that data normality assumptions are met. The second section reports results for the descriptive statistics conducted on all participant demographic variables that answer research question one. The third section reports results for the One-Way ANOVAs conducted to answer research question two. The fourth section reports the correlations between all independent and dependent continuous variables that is preliminary to reporting the multiple regression analyses results. The fifth section discusses the results of the sequential hierarchical regression analyses conducted to answer research questions three and four. The final section utilizes the results reported in prior sections to summarize the results of each of the four research questions identified in chapters one and three.

Data Screening and Assumptions of Normality

Prior to conducting descriptive and inferential statistical analyses, data were screened for missing values. Cases with a missing value for any of independent or dependent variables were deleted from the analysis. Further screening was then conducted to assess whether the variables met assumptions of normality that are necessary to ensure that data are distributed normally before most inferential statistical analyses are performed (Vogt & Johnson, 2011).

Normality is a statistical assumption utilized for One-Way ANOVAs and hierarchical multiple regressions that means that “the dependent variable values are assumed to be normally distributed at each level of the independent variable” (Vogt & Johnson, 2011, p. 257). Calculating skewness and kurtosis values for each variable is an accepted method of demonstrating data normality. Skewness indicates the symmetry or degree to which scores are located on either side of a central tendency. Positive values indicate a right skew and negative values indicate a left skew. Kurtosis indicates the peakedness of the distribution, with negative numbers resulting in a flatter than normal curve (Vogt & Johnson, 2011). While a normal distribution is zero, skewness values of -2 to +2 and kurtosis values of -3 to +3 are acceptable (Garson, 2012). The results of the assessment of normality for all independent and dependent variables for each grade-level database utilized in this study are reported in Table 4.1. A review of the index scores indicates that all independent and dependent variables in this study fall within the normal parameters for skewness and kurtosis, thus fulfilling the assumption of data normality for the One-Way ANOVA and multiple regression analyses.

Table 4.1

Assessment of Normality for Variables

	Kindergarten (<i>n</i> =253)		First Grade (<i>n</i> =254)		Second Grade (<i>n</i> =243)		Third Grade (<i>n</i> =231)	
Variables	Skew	Kurtosis	Skew	Kurtosis	Skew	Kurtosis	Skew	Kurtosis
DIBELS Next Comp.*	.429	.0404	-.333	-.087	-.480	1.996	.149	-.257
Student Absences	1.196	1.271	1.256	2.547	1.173	1.643	1.255	1.874
Teacher Absences	.080	-1.355	1.367	.907	1.314	1.622	.307	-.874

*Dependent variable

Frequencies and Descriptive Statistic Analyses

Descriptive statistics were run for each of the variables in each of the grade-level datasets in this study as well as demographic information related to the participants. Tables 4.2-4.6 report the results of these descriptive analyses. Statistics include the range (minimum and maximum), mean, and standard deviation for each scale variable.

Table 4.2

Descriptive Statistics for Kindergarten Demographic Data, IV, and DV Variables (n = 253)

Variables	Min	Max	Mean	SD
Ethnicity (1=Majority)	0	1	--	--
Gender (1=Male)	1	2	--	--
Socioeconomic Status (1=Qualifies for free/reduced lunch)	0	1	--	--
DIBELS Composite Score	70.00	265.00	159.62	37.20
Student Absences	.50	27.00	7.71	5.18
Teacher Absences	3.50	17.50	10.44	4.58

Table 4.3

Descriptive Statistics for First-Grade Demographic Data, IV, and DV Variables (n = 254)

Variables	Min	Max	Mean	SD
Ethnicity (1=Majority)	0	1	--	--
Gender (1=Male)	1	2	--	--
Socioeconomic Status (1=Qualifies for free/reduced lunch)	0	1	--	--
DIBELS Composite Score	21	390.0	213.35	67.28
Student Absences	0	29.0	6.95	4.82
Teacher Absences	6	49.5	20.36	12.06

Table 4.4

Descriptive Statistics for Second-Grade Demographic Data, IV, and DV Variables (n = 243)

Variables	Min	Max	Mean	SD
Ethnicity (1=Majority)	0	1	--	--
Gender (1=Male)	1	2	--	--
Socioeconomic Status (1=Qualifies for free/reduced lunch)	0	1	--	--
DIBELS Composite Score	29	460	296.60	60.10
Student Absences	0	29	7.05	5.02
Teacher Absences	6	54	20.17	12.23

Table 4.5

Descriptive Statistics for Third-Grade Demographic Data, IV, and DV Variables (n = 231)

Variables	Min	Max	Mean	SD
Ethnicity (1=Majority)	0	1	--	--
Gender (1=Male)	1	2	--	--
Socioeconomic Status (1=Qualifies for free/reduced lunch)	0	1	--	--
DIBELS Composite Score	244	600	414.87	71.68
Student Absences	0	29	7.09	5.48
Teacher Absences	6.5	27	14.92	6.03

Table 4.6

Descriptive Statistics for Third-Grade Longitudinal Data, IV, and DV Variables (n = 189)

Variables	Min	Max	Mean	SD
Ethnicity (1=Majority)	0	1	--	--
Gender (1=Male)	1	2	--	--
Socioeconomic Status (1=Qualifies for free/reduced lunch)	0	1	--	--
IA Assessment Standard Score	141	252	190.33	21.89
Cumulative Student Absences	5	113	28.51	17.93
Cumulative Teacher Absences	33.50	114	68.12	19.98

Correlations

This study utilized the Pearson correlation coefficient (r) to measure the degree to which quantitative variables in the samples were linearly related. This index of effect size ranges from -1 to +1 and “indicates the degree that low or high scores on one variable tend to go with high or low scores on another variable” (Green & Salkind, 2011, p. 258). Correlation coefficients of .90 or higher signal multicollinearity that results from independent variables being too highly

correlated, making it difficult to determine the separate effects of each variable on the dependent variable (Vogt & Johnson, 2011). According to Green and Salkind (2011), the behavioral sciences typically use the following interpretations of effect size indices with regard to correlation coefficients: .10 = small; .30 = medium; and .50 = large.

Pearson correlation coefficients were computed among each of the independent and dependent variables for each grade-level dataset, resulting in 15 correlation coefficients. The results of the correlation coefficients are reported in Tables 4.11-4.15. Results indicated that there were no cases of multicollinearity between variables. Adhering to Green and Salkind's (2011) suggestion to consider using a Bonferonni approach to control for Type 1 error when several correlations are being computed, a more stringent significance level was established. This approach requires dividing an accepted significance level (in this case, .05) by the number of computer correlations. In this study, .05 was divided by 12 to determine the new significance level of .0042. Using .0042 as a more conservative significance level, 7 of the 48 correlations were deemed significant. The seven significant correlations are noted with an asterisk (*) in Tables 4.7-4.10.

Table 4.7

Correlation Matrix – All Independent and Dependent Variables for Kindergarten (n = 253)

	1	2	3	4	5	6
1 Ethnicity (1 = Majority)	--					
2 Gender (1 = Male)	NA	--				
3 Socioeconomic (1 = qualifies for F/R lunch)	NA	NA	--			
4 DIBELS Next Composite Score	-.022	.082	-.223*	--		
5 Teacher Absences	.036	-.051	-.028	.057	--	
6 Student Absences	-.039	-.055	.198*	-.076	-.058	--

Note: * $p < .0042$ Bonferonni adjustment for multiple correlations to minimize chances of a Type I error.

Table 4.8

Correlation Matrix – All Independent and Dependent Variables for 1st Grade (n = 254)

	1	2	3	4	5	6
1 Ethnicity (1 = Majority)	--					
2 Gender (1 = Male)	NA	--				
3 Socioeconomic (1 = qualifies for F/R lunch)	NA	NA	--			
4 DIBELS Next Composite Score	.044	.064	-.285*	--		
5 Teacher Absences	.007	.001	-.126	.020	--	
6 Student Absences	-.099	-.030	.237*	-.156	.006	--

Note: * $p < .0042$ Bonferonni adjustment for multiple correlations to minimize chances of a Type I error.

Table 4.9

Correlation Matrix – All Independent and Dependent Variables for 2nd Grade (n = 243)

	1	2	3	4	5	6
1 Ethnicity (1 = Majority)	--					
2 Gender (1 = Male)	NA	--				
3 Socioeconomic (1 = qualifies for F/R lunch)	NA	NA	--			
4 DIBELS Next Composite Score	.003	.068	-.214*	--		
5 Teacher Absences	.067	.004	.019	-.010	--	
6 Student Absences	-.085	-.002	.198*	-.003	-.073	--

Note: * $p < .0042$ Bonferonni adjustment for multiple correlations to minimize chances of a Type I error.

Table 4.10

Correlation Matrix – All Independent and Dependent Variables for 3rd Grade (n = 231)

	1	2	3	4	5	6
1 Ethnicity (1 = Majority)	--					
2 Gender (1 = Male)	NA	--				
3 Socioeconomic (1 = qualifies for F/R lunch)	NA	NA	--			
4 DIBELS Next Composite Score	.003	.070	-.124	--		
5 Teacher Absences	-.043	.006	.049	-.091	--	
6 Student Absences	-.116	.066	.293*	-.070	.076	--

Note: * $p < .0042$ Bonferonni adjustment for multiple correlations to minimize chances of a Type I error.

Using Green and Salkind's (2011) correlation coefficient interpretation guidelines, all seven significant correlations were considered to have a small (low) relationship. The following subsection will discuss the statistically significant correlations.

Low Correlations

While seven correlations were considered to be statistically significant, all seven relationships are low. Significant relationships at each grade level will be discussed.

Kindergarten. Two correlations at the kindergarten level were considered to be statistically significant. Analysis revealed a significant negative relationship between socioeconomic status and DIBELS Next Composite Scores ($r = -.22$, $p < .0042$), indicating that students who qualified for free/reduced lunch also had lower spring DIBELS Next composite scores. The other statistically positive significant relationship existed between student absences and socioeconomic status, with students qualifying for free/reduced lunch missing more school ($r = .20$, $p < .0042$).

First Grade. Two correlations at the first-grade level were considered to be statistically significant. Similar to kindergarten, analysis revealed a significant negative relationship between socioeconomic status and DIBELS Next Composite Scores ($r = -.29$, $p < .0042$), indicating that students who qualified for free/reduced lunch also had lower spring DIBELS Next composite scores. The other statistically significant positive relationship existed between student absences and socioeconomic status, with students qualifying for free/reduced lunch missing more school ($r = .24$, $p < .0042$).

Second Grade. Two correlations at the second-grade level were considered to be statistically significant. Analysis revealed a significant negative relationship between socioeconomic status and DIBELS Next Composite Scores ($r = -.21$, $p < .0042$), indicating that students who qualified for free/reduced lunch also had lower composite scores on the spring DIBELS Next assessment. The other statistically significant positive relationship existed

between student absences and socioeconomic status, with students qualifying for free/reduced lunch missing more school ($r = .20$, $p < .0042$).

Third Grade. Only one correlation at the third-grade level was considered to be statistically significant. Analysis revealed a significant relationship between socioeconomic status and student absence ($r = .29$, $p < .0042$), indicating that students who qualified for free/reduced lunch were also absent more than their peers who did not qualify for free/reduced lunch.

One-Way ANOVA Analyses

In order to determine if varying levels of teacher absence influence student reading outcomes, a one-way analysis of variance (ANOVA) was performed at each grade level on the dependent variable DIBELS Next Composite Score. The independent variables were levels of teacher absence. A p -value of $<.05$ was established for statistical significance. The results are shown in Table 4.11.

Table 4.11

One-Way ANOVA of DIBELS Next Composite Scores

Dependent Variable	Groups	SS	df	MS	F	p
Kindergarten DIBELS Next Composite Scores	Between	1064.620	2	532.310	.383	.682
	Within	347666.708	250	1390.667		
	Total	348731.328	252			
First-Grade DIBELS Next Composite Scores	Between	9911.274	3	3303.758	.727	.536
	Within	1135346.836	250	4541.387		
	Total	1145258.110	253			
Second-Grade DIBELS Next Composite Scores	Between	728.401	3	242.800	.066	.978
	Within	873251.879	239	3653.774		
	Total	873980.280	242			
Third-Grade DIBELS Next Composite Scores	Between	10283.564	2	5141.782	1.001	.369
	Within	1171326.540	228	5137.397		
	Total	1181610.104	230			

$p < .05$

Kindergarten

A one-way analysis of variance was conducted to evaluate the relationship between spring DIBELS Next Composite scores and the change in the number of days a kindergarten teacher is absent during the school year. The independent variable, teacher absence, included five levels: 0-4 days; 5-9 days; 10-19 days; 20-34 days; and 35+ days. The dependent variable was spring DIBELS Next Composite scores. The ANOVA was not significant $F(2, 250) = .383, p = .68$.

First-Grade

A one-way analysis of variance was conducted to evaluate the relationship between spring DIBELS Next Composite scores and the change in the number of days a first-grade teacher is absent during the school year. The independent variable, teacher absence, included five levels: 0-4 days; 5-9 days; 10-19 days; 20-34 days; and 35+ days. The dependent variable was

spring DIBELS Next Composite scores. The ANOVA was not significant $F(3, 250) = .727, p = .54$.

Second-Grade

A one-way analysis of variance was conducted to evaluate the relationship between spring DIBELS Next Composite scores and the change in the number of days a second-grade teacher is absent during the school year. The independent variable, teacher absence, included five levels: 0-4 days; 5-9 days; 10-19 days; 20-34 days; and 35+ days. The dependent variable was spring DIBELS Next Composite scores. The ANOVA was not significant $F(3, 239) = .066, p = .98$.

Third-Grade

A one-way analysis of variance was conducted to evaluate the relationship between spring DIBELS Next Composite scores and the change in the number of days a third-grade teacher is absent during the school year. The independent variable, teacher absence, included five levels: 0-4 days; 5-9 days; 10-19 days; 20-34 days; and 35+ days. The dependent variable was spring DIBELS Next Composite scores. The ANOVA was not significant $F(2, 228) = 1.001, p = .37$.

Multiple Regression Analyses

Sequential hierarchical regression analyses were used to determine whether the independent variables were statistically significant predictors of the dependent variables. Five sequential hierarchical regressions were conducted with three blocks for each regression analysis. Based upon a thorough review of the literature regarding outside factors that can influence elementary reading achievement, the first block included the variables of gender, ethnicity, and socioeconomic status. In order to further isolate and examine the effects of student

and teacher absence, the second block included the variable of student absence (annual for Question 3 and cumulative for Question 4), and the third block included the variable of teacher absence (annual for Question 3 and cumulative for Question 4). The following sections discuss the results of each regression analysis on each of the dependent variables.

Kindergarten DIBELS Next Composite Score

A sequential hierarchical regression analysis was conducted on the dependent variable of DIBELS Next Composite Score. The independent variables were grouped into three blocks, controlling for gender, ethnicity and socioeconomic status demographics in the first block and isolating student and teacher absences in the subsequent two blocks. Table 4.12 reports the blocks in which variables are entered into the regression analysis, the unstandardized regression coefficients (b), the standard error for the unstandardized regression coefficient ($SE\ b$), standardized regression coefficients (β), and the variance (R^2) explained for each block.

Kindergarten DIBELS Next Composite Score (model 1). Results for the regression analysis indicated that for block 1 variables (ethnicity, gender, socioeconomic status), only socioeconomic status ($\beta = -.227, p < .001$) was a significant predictor of DIBELS Next composite scores, $F(3, 249) = 5.16, p = .002$. Socioeconomic status accounted for 6% ($R = .059$) of the variance in DIBELS scores.

Kindergarten DIBELS Next Composite Score (model 2). Adding the variable of student absence in block 2 to the hierarchical regression analysis produced significant results. In this model, $F(4, 248) = 3.92, p = .004$, socioeconomic status continued to be significant ($\beta = -.227, p < .001$). Socioeconomic status accounted for 6% ($R = .059$) of the variance in DIBELS scores.

Kindergarten DIBELS Next Composite Score (model 3). Adding the dependent variable teacher absence in block 3 to the hierarchical regression analyses produced results for the full model. In the full model, $F(5, 247) = 3.30, p = .007$, socioeconomic status continued to be the only significant variable ($\beta = -.220, p < .01$). Socioeconomic status accounted for 6% ($R = .063$) of the variance in DIBELS scores.

Table 4.12

Hierarchical Regression Coefficients for Kindergarten DIBELS Next Composite (n = 253), $R^2 = .063$

Variable blocks	<i>b</i>	<i>SE b</i>	β
Block 1			
Constant	162.273	8.970	
Ethnicity	-7.256	7.010	-.065
Gender	5.910	4.645	.079
Socioeconomic Status	-19.395	5.303	-.227***
Block 2			
Constant	164.000	9.660	
Ethnicity	-7.278	7.021	-.065
Gender	5.812	4.656	.078
Socioeconomic Status	-18.887	5.413	-.221**
Student Absences	-.220	.452	-.031
Block 3 – Full Model			
Constant	158.941	11.175	
Ethnicity	-7.538	7.030	-.067
Gender	6.067	4.667	.081
Socioeconomic Status	-18.818	5.415	-.220**
Student Absences	-.197	.453	-.027
Teacher Absences	.453	.502	.056

*Note*¹. $R^2 = .059$ for block 1; $.059$ for block 2; and $.063$ for block 3 – full model

*Note*². * $p < .05$, ** $p < .01$, *** $p < .001$

First-Grade DIBELS Next Composite Score

A sequential hierarchical regression analysis was conducted on the dependent variable of DIBELS Next Composite Score. The independent variables were grouped into three blocks, controlling for gender, ethnicity and socioeconomic status demographics in the first block and isolating student and teacher absences in the subsequent two blocks. Table 4.13 reports the blocks in which variables are entered into the regression analysis, the unstandardized regression coefficients (b), the standard error for the unstandardized regression coefficient ($SE\ b$), standardized regression coefficients (β), and the variance (R^2) explained for each block.

First-Grade DIBELS Next Composite Score (model 1). Results for the regression analysis indicated that for block 1 variables (ethnicity, gender, socioeconomic status), only socioeconomic status ($\beta = -.287, p < .001$) was a significant predictor of DIBELS Next composite scores, $F(3, 250) = 8.04, p < .001$. Socioeconomic status accounted for 9% ($R = .088$) of the variance in DIBELS scores.

First-Grade DIBELS Next Composite Score (model 2). Adding the variable of student absence in block 2 to the hierarchical regression analysis produced significant results. In this model, $F(4, 249) = 6.55, p < .001$, socioeconomic status continued to be significant ($\beta = -.226, p < .001$). Socioeconomic status accounted for 10% ($R = .095$) of the variance in DIBELS scores.

First-Grade DIBELS Next Composite Score (model 3). Adding the dependent variable teacher absence in block 3 to the hierarchical regression analyses produced results for the full model. In the full model, $F(5, 248) = 5.23, p < .001$, socioeconomic status continued to be the only significant variable ($\beta = -.268, p < .001$). Socioeconomic status accounted for 10% ($R = .095$) of the variance in DIBELS scores.

Table 4.13

Hierarchical Regression Coefficients for First-Grade DIBELS Next Composite ($n = 253$), $R^2 = .095$

Variable blocks	<i>b</i>	<i>SE b</i>	β
Block 1			
Constant	205.510	16.269	
Ethnicity	6.891	11.501	.036
Gender	9.665	8.116	.072
Socioeconomic Status	-42.039	8.863	-.287***
Block 2			
Constant	215.095	17.605	
Ethnicity	5.330	11.531	.028
Gender	9.243	8.106	.069
Socioeconomic Status	-38.999	9.105	-.266***
Student Absences	-1.226	.871	-.088
Block 3 – Full Model			
Constant	216.680	18.942	
Ethnicity	5.350	11.554	.028
Gender	9.254	8.121	.069
Socioeconomic Status	-39.278	9.203	-.268***
Student Absences	-1.219	.873	-.087
Teacher Absences	-.078	.340	-.014

*Note*¹. $R^2 = .088$ for block 1; $.095$ for block 2; and $.095$ for block 3 – full model

*Note*². * $p < .05$, ** $p < .01$, *** $p < .001$

Second-Grade DIBELS Next Composite Score

A sequential hierarchical regression analysis was conducted on the dependent variable of DIBELS Next Composite Score. The independent variables were grouped into three blocks, controlling for gender, ethnicity and socioeconomic status demographics in the first block and isolating student and teacher absences in the subsequent two blocks. Table 4.14 reports the blocks in which variables are entered into the regression analysis, the unstandardized regression coefficients (b), the standard error for the unstandardized regression coefficient ($SE\ b$), standardized regression coefficients (β), and the variance (R^2) explained for each block.

Second-Grade DIBELS Next Composite Score (model 1). Results for the regression analysis indicated that for block 1 variables (ethnicity, gender, socioeconomic status), only socioeconomic status ($\beta = -.225, p < .001$) was a significant predictor of DIBELS Next composite scores, $F(3, 239) = 4.61, p = .004$. Socioeconomic status accounted for 6% ($R = .055$) of the variance in DIBELS scores.

Second-Grade DIBELS Next Composite Score (model 2). Adding the variable of student absence in block 2 to the hierarchical regression analysis produced significant results. In this model, $F(4, 238) = 3.57, p = .007$, socioeconomic status continued to be significant ($\beta = -.234, p < .001$). Socioeconomic status accounted for 6% ($R = .057$) of the variance in DIBELS scores.

Second-Grade DIBELS Next Composite Score (model 3). Adding the dependent variable teacher absence in block 3 to the hierarchical regression analyses produced results for the full model. In the full model, $F(5, 237) = 2.85, p = .016$, socioeconomic status continued to be the only significant variable ($\beta = -.234, p < .001$). Socioeconomic status accounted for 6% ($R = .057$) of the variance in DIBELS scores.

Table 4.14.

Hierarchical Regression Coefficients for Second-Grade DIBELS Next Composite (n = 242), $R^2 = .057$

Variable blocks	<i>b</i>	<i>SE b</i>	β
Block 1			
Constant	284.850	16.394	
Ethnicity	2.824	11.513	.015
Gender	11.312	7.625	.094
Socioeconomic Status	-30.971	8.709	-.225***
Block 2			
Constant	280.445	17.585	
Ethnicity	3.576	11.575	.020
Gender	11.487	7.637	.096
Socioeconomic Status	-32.230	8.903	-.234***
Student Absences	.539	.773	.045
Block 3 – Full Model			
Constant	280.843	18.596	
Ethnicity	3.622	11.621	.020
Gender	11.490	7.654	.096
Socioeconomic Status	-32.211	8.926	-.234***
Student Absences	.535	.777	.045
Teacher Absences	-.021	.312	-.004

*Note*¹. $R^2 = .055$ for block 1; .057 for block 2; and .057 for block 3 – full model

*Note*². * $p < .05$, ** $p < .01$, *** $p < .001$

Third-Grade DIBELS Next Composite Score

A sequential hierarchical regression analysis was conducted on the dependent variable of DIBELS Next Composite Score. The independent variables were grouped into three blocks, controlling for gender, ethnicity and socioeconomic status demographics in the first block and isolating student and teacher absences in the subsequent two blocks. Table 4.15 reports the blocks in which variables are entered into the regression analysis, the unstandardized regression coefficients (b), the standard error for the unstandardized regression coefficient ($SE\ b$), standardized regression coefficients (β), and the variance (R^2) explained for each block.

Third-Grade DIBELS Next Composite Score (model 1). Results for the regression analysis indicated that for block 1 variables (ethnicity, gender, socioeconomic status), none were a statistically significant predictor of DIBELS Next composite scores, $F(3, 227) = 1.639, p = .18$.

Third-Grade DIBELS Next Composite Score (model 2). Adding the variable of student absence in block 2 to the hierarchical regression analysis did not produce significant results, $F(4, 226) = 1.32, p = .26$. None of the variables were a statistically significant predictor of DIBELS Next scores.

Third-Grade DIBELS Next Composite Score (model 3). Adding the dependent variable teacher absence in block 3 to the hierarchical regression analyses produced results for the full model. In the full model, $F(5, 225) = 1.381, p = .23$, no variables were a statistically significant predictor of DIBELS Next scores.

Table 4.15.

Hierarchical Regression Coefficients for Third-Grade DIBELS Next Composite (n = 230), $R^2 = .030$

Variable blocks	<i>b</i>	<i>SE b</i>	β
Block 1			
Constant	404.845	21.392	
Ethnicity	-1.627	16.383	-.007
Gender	10.816	9.423	.075
Socioeconomic Status	-21.696	11.140	-.128
Block 2			
Constant	408.671	22.336	
Ethnicity	-2.617	16.487	-.011
Gender	11.137	9.451	.078
Socioeconomic Status	-19.691	11.637	-.117
Student Absences	-.548	.905	-.042
Block 3 – Full Model			
Constant	423.625	25.202	
Ethnicity	-3.313	16.473	-.013
Gender	11.139	9.438	.078
Socioeconomic Status	-19.289	11.625	-.114
Student Absences	-.478	.906	-.037
Teacher Absences	-.999	.784	-.084

Note¹. $R^2 = .021$ for block 1; .023 for block 2; and .030 for block 3 – full model

*Note². * $p < .05$, ** $p < .01$, *** $p < .001$*

Third-Grade Iowa Assessment Standard Score (Reading)

A sequential hierarchical regression analysis was conducted on the dependent variable of Iowa Assessment Standard Score. The independent variables were grouped into three blocks, controlling for gender, ethnicity and socioeconomic status demographics in the first block and isolating cumulative student and teacher absences in the subsequent two blocks. Table 4.16 reports the blocks in which variables are entered into the regression analysis, the unstandardized regression coefficients (b), the standard error for the unstandardized regression coefficient ($SE\ b$), standardized regression coefficients (β), and the variance (R^2) explained for each block.

Third-Grade Iowa Assessment Standard Score (model 1). Results for the regression analysis indicated that for block 1 variables (ethnicity, gender, socioeconomic status), none were a statistically significant predictor of Iowa Assessment standard reading scores, $F(3, 185) = 2.446, p = .07$.

Third-Grade Iowa Assessment Standard Score (model 2). Adding the variable of cumulative student absences in block 2 to the hierarchical regression analysis produced significant results, $F(4, 184) = 4.064, p = .004$. Two of the variables were statistically significant predictors of Iowa Assessment Standard reading scores. Socioeconomic status ($\beta = -.199, p < .01$) and cumulative student absences ($\beta = .218, p < .01$) were significant predictors, accounting for 8% ($R^2 = .081$) of the variance in third-grade Iowa Assessment standard reading scores.

Third-Grade Iowa Assessment Standard Score (model 3). Adding the variable of cumulative teacher absences in block 3 to the hierarchical regression analysis produced significant results for the full model, $F(5, 183) = 3.235, p = .008$. Two of the variables were statistically significant predictors of Iowa Assessment standard reading scores. Socioeconomic status ($\beta = -.199, p < .01$) and cumulative student absences ($\beta = .218, p < .01$) were significant

predictors, accounting for 8% ($R^2 = .081$) of the variance in third-grade Iowa Assessment standard score.

Table 4.16

Hierarchical Regression Coefficients for Third-Grade Iowa Assessment Standard Score ($n = 189$), $R^2 = .081$

Variable blocks	<i>b</i>	<i>SE b</i>	β
Block 1			
Constant	204.166	7.617	
Ethnicity	-5.921	6.040	-.071
Gender	-4.493	3.165	-.103
Socioeconomic Status	-7.477	3.959	-.137
Block 2			
Constant	195.226	8.063	
Ethnicity	-3.442	5.979	-.041
Gender	-4.665	3.102	-.107
Socioeconomic Status	-10.841	4.045	-.199**
Cumulative Student Absences	.266	.091	.218**
Block 3 – Full Model			
Constant	195.670	9.424	
Ethnicity	-3.402	6.011	-.041
Gender	-4.662	3.111	-.107
Socioeconomic Status	-10.863	4.063	-.199**
Cumulative Student Absences	.266	.091	.218**
Cumulative Teacher Absences	-.007	.078	-.007

*Note*¹. $R^2 = .038$ for block 1; $.081$ for block 2; and $.081$ for block 3 – full model

*Note*². * $p < .05$, ** $p < .01$, *** $p < .001$

Summary Answers to Research Questions

Each of the four research questions is answered in this section, utilizing data analyses results presented previously in this chapter.

Research Question 1

What are the demographic characteristics of the participants in the study?

Kindergarten. The kindergarten sample consisted of 253 students, 12.6% of whom were identified as minority. Males accounted for 54.5% of the sample, and 25.3% of the students qualified for free/reduced lunch. Students in this grade level missed more school than older students in the building, absent an average of 7.71 days of instruction ($SD = 5.18$).

First Grade. The first-grade sample consisted of 254 students, 14.6% of whom were identified as minority. Males accounted for nearly half of the sample (49.6%), and 29.9% of the students qualified for free/reduced lunch. Students in this grade level had the lowest level of absenteeism, missing an average of 6.95 days of instruction ($SD = 4.82$).

Second Grade. The second-grade sample consisted of 243 students, 12.3% of whom were identified as minority. Males accounted for 48.1% of the sample, and 25.5% of the students qualified for free/reduced lunch. Students missed an average of 7.05 days of instruction ($SD = 5.02$).

Third Grade. The third-grade sample consisted of 231 students, with only 9.1% identified as minority. Males accounted for 46.8% of the sample, and 23.4% of the students qualified for free/reduced lunch. Students missed an average of 7.09 days of instruction ($SD = 5.48$).

Research Question 2

Is there a statistically significant difference between the number of days a teacher is absent and a student's reading proficiency in a) kindergarten, b) first grade, c) second grade, and d) third grade?

- a) Results for the kindergarten One-Way Analysis of Variance revealed that there were no statistically significant differences between the number of days a kindergarten teacher was absent and student composite scores on the spring DIBELS Next literacy assessment.
- b) Results for the first-grade One-Way Analysis of Variance revealed that there were no statistically significant differences between the number of days a first-grade teacher was absent and student composite scores on the spring DIBELS Next literacy assessment.
- c) Results for the second-grade One-Way Analysis of Variance revealed that there were no statistically significant differences between the number of days a second-grade teacher was absent and student composite scores on the spring DIBELS Next literacy assessment.
- d) Results for the third-grade One-Way Analysis of Variance revealed that there were no statistically significant differences between the number of days a third-grade teacher was absent and student composite scores on the spring DIBELS Next literacy assessment.

Research Question 3

To what extent do a student's gender, socioeconomic status, ethnicity, absences, and teacher absences predict reading proficiency at a) kindergarten, b) first grade, c) second grade, and d) third grade?

- a) Results for the kindergarten hierarchical multiple regression analysis revealed that ethnicity, gender, student absence, and teacher absence were not statistically significant predictors for DIBELS Next scores in the full model. However, the variable of socioeconomic status was a statistically significant predictor for DIBELS Next scores. This suggests that kindergarten students from low-income families are more likely to perform at lower levels on this assessment than their peers.
- b) Results for the first-grade hierarchical multiple regression analysis were the same as for kindergarten, revealing that ethnicity, gender, student absence, and teacher absence were not statistically significant predictors for DIBELS Next scores in the full model. However, the variable of socioeconomic status was a statistically significant predictor for DIBELS Next scores. This suggests that first-grade students from low-income families are more likely to perform at lower levels on this assessment than their peers.
- c) Results for the second-grade hierarchical multiple regression analysis also revealed similar results. The variables of ethnicity, gender, student absence, and teacher absence were not statistically significant predictors for DIBELS Next scores in the full model. However, the variable of socioeconomic status was a statistically significant predictor for DIBELS Next scores. This suggests that second-grade

students from low-income families are more likely to perform at lower levels on this assessment than their peers.

- d) Results for the third-grade hierarchical multiple regression analysis were similar to other grade levels, with the variables of ethnicity, gender, student absence, and teacher absence not statistically significant predictors for DIBELS Next scores in the full model. However, the variable of socioeconomic status was a statistically significant predictor for DIBELS Next scores. This suggests that third-grade students from low-income families are more likely to perform at lower levels on this assessment than their peers.

Research Question 4

To what extent do a student's gender, socioeconomic status, ethnicity, cumulative absences, and cumulative teacher absences predict reading proficiency at third grade?

Results for the hierarchical multiple regression analysis revealed that ethnicity, gender, and teacher absence were not statistically significant predictors for Iowa Assessment standard scores in reading in the full model. However, the variables of socioeconomic status and cumulative student absences were statistically significant predictors for Iowa Assessment reading scores. This suggests that students from low-income families and those who missed more cumulative days of instruction in grades kindergarten through third grade are more likely to perform at lower levels on this assessment than their peers.

Summary

Results of the data analyses were presented in this chapter. Data assumptions of normality were met and frequencies and descriptive data were reported regarding study participant demographics and background characteristics. Twelve correlations between variables

were described at each grade level. One-Way ANOVA results revealed that there were no statistically significant differences between levels of teacher absence and student reading performance on spring DIBELS Next assessments. Hierarchical regression analyses results showed that for each grade level the variable of socioeconomic status was a significant predictor for the dependent variable of spring DIBELS Next composite scores and that socioeconomic status and cumulative student absences were significant predictors of the dependent variable Iowa Assessment standard reading score. A discussion of the results and recommendations and implications for practice and future research are presented in Chapter 5.

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

“The key to achievement for students in poverty is in creating relationships with them. Because poverty is about relationships as well as entertainment, the most significant motivator for these students is relationships.” (p. 109)

Ruby Payne

A Framework for Understanding Poverty (2005)

In this chapter, the results presented in Chapter 4 are examined and discussed within the conceptual framework and the current literature. The chapter begins with a summary of the study and is then followed by an overview of the results that is embedded within the attachment theory framework that guided this study. Implications for potential policy changes are presented along with recommendations for future research. The final section includes my thoughts on the investigation.

Summary of the Study

Chapter 1 provided an overview of the study and the complexity of the issues that impact elementary reading proficiency. Grounded in attachment theory as a theoretical framework, information was provided on the importance of the study as it attempted to identify variables including student and teacher absence that adversely affect student achievement. By focusing on these identified factors, district resources can potentially be targeted to improving academic outcomes. Chapter 1 concluded with definitions of key terms and acronyms.

Chapter 2 described the current reality of teacher absence and its subsequent negative effect on student achievement. Through a review of the literature, demographic and organizational factors and policies that influence teacher attendance were specifically examined. Utilizing attachment theory as a conceptual framework, an examination of relevant information

related to student attendance factors and outcomes were also included. A discussion was also provided regarding the impact of substitute teachers with regard to student performance.

Chapter 3 outlined the methodology utilized in this study, including the research design, methodological approach, research questions, research setting, sample and participants, and method of data collection. Each of the independent and dependent variables was discussed and summarized. Descriptive and inferential data analyses were described, and delimitations and limitations were discussed.

Results of the data analyses were provided in Chapter 4 and included a discussion of data-screening methods and assumptions of normality. Frequencies and descriptive statistics were provided in addition to results from the One-Way ANOVA conducted at each grade level. Significant correlations were identified among the independent and dependent variables and from the regression analyses. The four research questions were answered based upon the results of the descriptive and inferential analyses.

The following sections of Chapter 5 discuss the research results within the context of the conceptual framework and current literature. Potential educational practice and policy implications are identified, and the chapter concludes with my thoughts regarding the study.

Discussion of the Results

In an attempt to meet the unrealistic achievement demands set forth in *No Child Left Behind* legislation and to quell increasing scrutiny regarding the effectiveness of our nation's schools when compared to other countries, school districts and researchers are examining all facets of the educational process in an attempt to improve academic achievement. Teacher and student absence rates are both becoming more of a focus as to their individual impact on student

achievement – but rarely are their impact and potential relationship examined in conjunction with each other.

The goal of this study was to examine the effects of individual, matched elementary student and teacher absence on student reading achievement. The results show that the variable of socioeconomic status was a significant predictor for spring DIBELS Next composite scores at each grade level: kindergarten, first, second, and third. In addition, the variables of socioeconomic status and cumulative K-3 student absences were significant predictors for third-grade Iowa Assessment standard scores in reading. In the sections below, each of these independent variables is discussed in detail.

Demographic Variables

Based upon a review of the literature, three demographic variables were selected as having an influence on elementary student reading achievement. These variables included ethnicity, gender, and socioeconomic status. Neither ethnicity nor gender had a statistically significant impact on reading achievement in any of the examined grade levels while socioeconomic status was significant at every grade level. Each of the demographic variables will be addressed in the following subsections.

Ethnicity. The independent variable of ethnicity was not a significant predictor of spring DIBELS Next Composite reading scores at any grade level or of the Iowa Assessment standard score in reading at third grade. The results are similar to those conducted in another Midwestern state and reported by Beckman, Messersmith, Shepard, and Cates (2012) in which no significant differences were found among ethnic groups on the Nebraska State Accountability Reading Test. However, the results of both studies may have been influenced by the relatively small sample size and low percentage of students who were identified as minority. This particular sample also

had no significant correlation between ethnicity and socioeconomic status which may not be indicative of the general population of the state or nation. Because other studies have found statistically significant differences in minority and white children in grades K- 3 (Chatterji, 2006; Cheadle, 2008) and because larger minority percentages are evidenced in lower grades in this particular building, future examination into the effects of race on reading achievement should be considered.

Gender. The independent variable of gender was not a significant predictor of spring DIBELS Next Composite reading scores at any grade level or of the Iowa Assessment standard scores in reading in third grade. The results are similar to those reported by Below, Skinner, Fearington, and Sorrell (2010) who found that while females scored significantly higher on the individual kindergarten DIBELS measures the differences were small. However, gender differences based on overall composite scores were not calculated in that study. No differences were found between groups in grades 1-3. However, since results are contradictory to research conducted over the past 50 years that consistently finds females scoring higher than males on elementary reading measures (Chatterji, 2006; Gates, 1961; Klecker, 2006; Robinson & Lubinski, 2010), future examination into gender effects on other reading outcome measures and reading growth should be considered.

Socioeconomic Status.

“Low-income children experience substantially less cognitive stimulation and enrichment in comparison to wealthier children. Low-income compared to middle-income parents speak less often and in less sophisticated ways to their young children, and as the children grow older, low-income parents are less likely than middle-income parents to engage jointly with their children in literary activities such as reading aloud or visiting the library.” (Evans, 2004, p. 80)

Results of this study indicated that socioeconomic status was a significant predictor for reading achievement at all examined grade levels. The results of this study corroborate earlier

findings that suggest that children who live in poverty enter school with decreased vocabulary and perform at lower academic levels than do their more economically advantaged peers (Beckman et al., 2012; Chatterji, 2006; Cheadle, 2008; Hart & Risley, 2003; Robinson & Lubienski, 2010). A comparison of national and state percentages of families below the poverty line is presented in Table 5.1.

Table 5.1

Percentage of Families With Income Below Poverty Line In Past 12 Months

	United States		Iowa	
	Percent	Percent Margin of Error	Percent	Percent Margin of Error
All families	10.5%	+/-0.1	7.6%	+/-0.2
With related children under 18	16.4%	+/-0.1	13.0%	+/-0.4
With related children under 5 only	17.7%	+/-0.2	16.8%	+/-0.9
Married couple families	5.1%	+/-0.1	3.4%	+/-0.2
With related children under 18	7.4%	+/-0.1	5.0%	+/-0.3
With related children under 5 only	6.6%	+/-0.1	5.2%	+/-0.6
Families with only female householder – no male present	29.4%	+/-0.1	29.7%	+/-0.9
With related children under 18	38.2%	+/-0.1	37.8%	+/-1.2
With related children under 5 only	46.3%	+/-0.3	51.5%	+/-2.4

U.S. Census Bureau, 2007-2011 American Community Survey

While the results of this study highlighted the impact of poverty on elementary reading achievement, educational ramifications due to poverty, however, extend well past elementary school. According to Wyner, Bridgeland, and Diulio (2007):

Studies have found that lower-income students start kindergarten with substantially lower cognitive skills than their more advantaged peers, attend worse schools, score lower on

standardized tests, enroll less often in AP classes, and are less likely to graduate from high school, and less frequently go to college. (p. 33)

The case for early intervention for economically disadvantaged students is dramatically highlighted in Hart and Risley's (2003) follow-up study to their longitudinal clinical language intervention. In the initial study, 42 families with children who either attended a preschool in the impoverished section of a Midwestern city or whose parents were professors at the nearby University were recruited to participate. Parent-child verbalizations were observed and documented in the home setting once per month from 6 months to 3 years. Their findings indicated that in the first four years of life, children in professional families were provided with 45 million words; average children in a working class family were provided with 26 million words; and children in welfare families were provided with 13 million words. Due to the enormity of the vocabulary gap, the best intervention programs could only strive to keep children on welfare from falling further behind children with working parents. Vocabulary use at age three was also predictive of third-grade language skills and reading comprehension scores.

Rebell and Wolff (2012) have identified four key areas of support that would be the most beneficial in overcoming the educational barriers imposed by poverty:

1. Early childhood education, beginning at birth, to ensure school readiness.
2. Routine and preventative physical and mental health care.
3. After-school and summer learning opportunities to promote academic, social, emotional, and civic-minded growth.
4. Engagement of families in order to support academic growth.

An additional area of support that should be examined based upon the results of this study would be to explore ways to engage students living in poverty. At each grade level, socioeconomic

status was positively, significantly correlated with student absence. Not surprisingly, DIBELS Next scores and socioeconomic status were negatively correlated at the K-2 grades. In order for these at-risk students to receive quality instruction and learn critical early literacy skills, they must be present. However, for at-risk students to be habitually in attendance – especially when family members may not value education – will require deliberate action on the part of the district and classroom teacher. While the professional development focus for elementary teachers is primarily on curriculum, instruction, and assessment, perhaps additional student- and family-level factors need to be emphasized as well. According to O'Connor and McCartney (2007):

Early-education teachers are often instructed as to ways to foster high-quality relationships with students. Elementary school teachers, in comparison, are often educated as to how to promote effective instructional interactions, rather than relationships, with students.... Educating teachers as to how to develop high-quality relationships with children may provide strategies for teachers working with children who are at risk for lower levels of achievement. (p. 363-4)

While many of the above recommendations require an intricate understanding and coordination of district, state, and federal resources, wraparound services are critical in order for students to be able to focus on their education. “Until your school finds ways to address the social, emotional, and health-related challenges that your kids face every day, academic excellence is just a politically correct but highly unlikely goal” (Jensen, 2009, p. 70).

There are some easily accomplished methods that yield positive results for economically disadvantaged students. For example, supplying a set of student-selected trade books to low-income students for the summer can reduce summer reading setbacks (Allington et al., 2010). However, for schools to get to the core of the poverty issues as they relate to student

achievement, family engagement and relationship-building between teachers and parents and teachers and students is a critical foundation for future success.

In her updated book *A Framework for Understanding Poverty* (2005), Payne asserts that education and relationships are two things that help a person move out of poverty. In accordance with the attachment theory framework that guided this study and emphasized the importance of the relationship between teacher and student, Payne states:

Teachers and administrators have always known that relationships...make a great deal of difference—sometimes all of the difference—in what could or could not happen in a building. But since 1980 we have concentrated our energies in schools on “achievement” and “effective teaching strategies.” ...Yet the most important part of learning seems to be related to relationship....” (p. 110)

According to Jensen (2009), “Kids raised in poverty are more likely to lack—and need—a caring, dependable adult in their lives, and often it’s teachers to whom children look for that support” (p. 11). However, children in poverty often experience a lack of secure attachments (Evans, 2004) and will often act out in school through attention-seeking behavior or anxiety. Teacher education is a critical component to understanding children of poverty and help students form new attachments and provide strong relational support.

Attendance Variables

Two attendance variables were hypothesized as having an effect on elementary student reading achievement. Each attendance variable is addressed separately in the following subsections.

Student Absences. While annual student absences were not found to be a significant predictor of reading performance at any grade level in this study, annual student absences were

positive correlated with socioeconomic status at each grade level. Students receiving free or reduced lunch are more likely to be chronically absent than a student who does not qualify for the federal subsidy (Gottfried, 2009; Ready, 2010; Spradlin et al., 2012; Utah Education Policy Center, 2012). A special emphasis should be placed on monitoring and improving the attendance of children in poverty. “Compared to high SES children with good attendance, low SES children with good attendance gain almost 8 percent more literacy skills per month during kindergarten and almost 7 percent more per month during first grade” (Ready, 2010, p. 280).

Cumulative K-3 student absences were found to be a significant predictor of Iowa Assessment reading standard scores in third grade, with students missing more instruction during their K-3 schooling performing at lower rates on the standardized test. While there have been recent studies that have also found negative academic outcomes on standardized tests related to poor student attendance in Ohio, these studies have utilized average rates of school attendance and average student performance levels at the building or district levels, not at the individual level (Roby, 2004; Sheldon, 2007).

Similar to this study, several recent studies have been conducted at the individual student level. The number of annual absences for students in grades 3-4 in a Southwestern state were also determined to be not statistically related to state reading assessment scores, although the relationship between cumulative absences and reading outcomes was not explored (Schmitt, Balles, & Venesky, 2013).

Gottfried (2010) examined individual student attendance and math and reading achievement for elementary and middle-school students in Philadelphia from 1994-2001. Findings indicated statistically significant relationships between student attendance and academic achievement at the elementary level. While analysis in the present study did not

demonstrate that attendance was significantly related to spring reading achievement in a given school year, it did indicate that cumulative student absences over the K-3 school years do matter and should be addressed in future research.

Even if students do not cross the “chronically-absent threshold” each year but compile a collectively large number of absences over the early elementary years, learning may be negatively impacted. A collaborative effort among stakeholders to provide an engaging, welcoming learning environment is vital to improving attendance rates. There are activities in which schools can engage in order to improve daily attendance (Epstein & Sheldon, 2002; Spradlin et al., 2012). The following activities were consistently associated with improving daily attendance and reducing chronic absenteeism:

1. Set attendance goals, monitor progress, and provide awards to students for improved attendance.
2. Establish two-way communication and a partnership between families and schools by incorporating the use of school contracts and home visits.
3. Create after-school programs that motivate children to attend school and assist in meeting the needs of families and communities.
4. Form attendance teams which identify at-risk students, identify barriers, and provide early intervention.

By taking a more comprehensive approach to attendance at the elementary level, focusing on positive activities, and sustaining a focus on improving attendance at the individual level, districts can reduce chronic absenteeism and alleviate the long-term, negative effects for students and society.

Teacher Absences. While neither teacher annual or cumulative absences were found to be a significant predictor of student reading proficiency at any of the examined grade levels, these findings are contrary to other studies that primarily examine teacher absence and its effects on student outcomes at the building, district, or state levels (Clotfelter et al., 2009; Imants & Van Zoelen, 1995; Miller, 2012; Miller, Murnane, & Willett, 2008; Woods & Montagno, 1997).

Teacher absenteeism deserves closer analysis, especially in the lower elementary grades. Teachers in primary grades have the opportunity to establish caring relationships with students that can set the foundation for student success by influencing achievement trajectories (Hamre & Pianta, 2001) and impact future patterns of student attendance.

Unfortunately, schools in need of assistance or those with the neediest students often experience persistently high rates of teacher absenteeism. When a teacher is chronically absent, a negative impact on student attendance and achievement has been established even after controlling for other achievement factors such as teacher and student demographics and organizational variables. Rates of teacher absence have been found to be higher in poor-performing urban elementary schools with high percentages of free/reduced lunch students (Imants & VanZoelen, 1995; Miller, Murnane, & Willett, 2007). Because effective, present teachers are critical to the continuity of quality instruction necessary to meet the increased academic demands set forth under *No Child Left Behind*, educational leaders must continue to examine the impact of teacher absenteeism on student achievement.

Conclusion

The relationships that teachers build with students form the single strongest access to student goals, socialization, motivation, and academic performance. (Jenson, 2009, p. 20)

This study sought to provide information to school districts that may be beneficial in their quest to meet the proficiency mandates of *No Child Left Behind* legislation by seeking to identify

variables that impact elementary reading proficiency. Attachment theory was used to direct the identification of the variables of student absence and teacher absence, with the selection of the demographic variables of ethnicity, gender, and socioeconomic status guided from a thorough review of the literature. The variables of ethnicity, gender, student absence, teacher absence, and cumulative teacher absences did not have a significant impact on reading proficiency. Only two of the hypothesized variables were found to have a statistically significant impact on elementary reading proficiency: socioeconomic status (at each grade level) and cumulative student absences. While the variable of student absence did not have a statistically significant impact on reading proficiency at individual grade levels, cumulative student absence was significant. It is also important to re-emphasize that student absence was significantly correlated to socioeconomic status at each grade level, a finding that should assist districts in focusing attention on these areas. While difficult, with a focused and sustained approach by districts, it is possible to ameliorate the negative effects of poverty and to actively engage students and families in improving attendance and academic outcomes.

Implications for Policy and Practice

Understanding factors that influence student achievement in reading is vital for all stakeholders involved in education. The findings of this study indicate a need for early and sustained intervention services and additional opportunities for students living in poverty and for those who struggle with a pattern of chronic attendance issues. Educational leaders will find it necessary to inform, support, and engage the family in the education of the child and would be prudent to provide additional and substantial wraparound resources to meet the needs of both the child and family.

Recommendations

While poverty and poor attendance are linked, the first priority for districts must be to address the root causes of absenteeism and to work with all stakeholders to improve student attendance. The following strategies are recommended (Chang & Jordan, 2012) in order to raise public awareness and negate the effects of poor attendance on reading proficiency for elementary students:

1. Monitor and share chronic absence data with stakeholders.
2. Enlist the help of community organizations and parents to make attendance a community priority.
3. Nurture a culture of attendance by raising public awareness, providing attendance incentives, and mentoring identified at-risk students.
4. Identify and address barriers to school attendance, including issues related to transportation, health care, and housing.
5. Support stronger attendance policies that have a public reporting component and establish attendance teams to assist at-risk families and students in order to improve attendance.

Because a student's socioeconomic status is significantly correlated with elementary academic performance, the following recommendations stem from the extensive works of Payne (2005) and Jensen (2009):

1. Deepen staff understanding regarding how poverty affects behavior and academic performance.
2. Be respectful and embed social skills instruction at all grade levels to create an inclusive classroom environment.
3. Recruit and train the best staff to work with disadvantaged children.

4. Build core skills of students by utilizing diagnostic assessments and targeted instruction.
5. Develop community partnerships to provided needed services to students and families.
6. Build relationships among staff, students, and families.
7. Create an enrichment mindset that maximizes both student and staff potential.

While the relationship between teacher absence and student achievement in this particular study was not statistically significant, many of the recommendations regarding improving student attendance and outcomes, especially for disadvantaged students, center around the creation of rich, engaging, and safe classroom environments. This is a difficult feat to accomplish if the classroom teacher is periodically or frequently absent. States and districts can examine their current policies and practices with regard to teacher absences in order to minimize any negative student effects. While many staff absences are unavoidable, districts can reduce the frequency with which they pull teachers from the classroom for professional development opportunities; hire and train highly-qualified substitutes, especially for long-term leaves; and tighten procedures for reporting and documenting absences.

Recommendations for Future Research

This study contributes to the literature on student and teacher absence by examining the impact of both teacher and student absence at the individual level on reading achievement. Because this study was limited to one Midwestern school district, future research might consider utilizing the same research design in an urban or rural district or in different regions of the country that have varied demographics. Although not the focus of this study, the results indicate a need to explore the interactions among student-teacher relationships, attendance, and academic achievement, especially in early elementary settings involving students living in poverty.

Student absence and low socioeconomic status are well-documented in the research as having negative effects on achievement. Recommendations by researchers typically include focusing on interventions and increased opportunities to learn or focusing on improving instructional practices of teachers. Many researchers also recommend examining student motivation and engagement as a method of increasing student performance. However, these recommendations often fall short with regard to their importance in students' lives. Based upon Maslow's hierarchy of needs, researchers who are delving into academic performance of students in poverty need to examine and control for physiological, safety, belongingness, and esteem factors before expecting all students to engage in the higher-order thinking and creative problem-solving required in the Core Curriculum. This requires a focused examination of critical teacher-student relationships within the context of teaching and learning in order to assist school leaders and all stakeholders in helping our neediest and most vulnerable population – the nation's children who live in poverty – to have the opportunity to experience a successful future.

Final Thoughts

“Adults who build trusting, supportive relationships with low-SES students help foster those students’ independence and self-esteem and protect them from the deleterious effects of poverty. Principals, teachers, counselors, and coaches must provide the much-needed outstretched hand that will help children lift themselves out of poverty.” (p. 94)

Eric Jensen

Teaching with Poverty in Mind (2009)

By utilizing attachment theory as a conceptual framework for this study, I expected that student and/or teacher absences would be correlated or that there would be more of a statistically significant impact on student achievement when students and/or teachers were chronically absent – especially with regard to teacher absences. Surprisingly, those findings were mainly unsubstantiated. However, socioeconomic status was significant at all grade levels. While not a focus of this study, the relationship between a secure child-teacher attachment for students living

in poverty and the effect of that attachment on academic achievement deserves increased attention.

Unfortunately, despite decades of research and ensuing recommendations regarding poverty and poor attendance as they relate to student achievement, few States and districts have been successful in reducing or eliminating the achievement gap experienced between economically disadvantaged children and their peers. However, there are high-poverty schools that “beat the odds” (McREL, 2005). Table 5.2 summarizes the organizational components and sub-components evident in these successful schools.

Table 5.2

Characteristics of Schools That “Beat the Odds”

Component	Description
Instruction	Structure (clean student goals, strong classroom management)
	Individualization (differentiated instruction based on data)
	Opportunity to learn (challenging curriculum tied to standards)
School Environment	Orderly climate (clear and enforced rules for student behavior)
	Assessment & monitoring (regular review of performance)
	Parent involvement (positive & productive parent relationships)
	Academic press for achievement (high expectations for all)
Professional Community	Professional development (improving teacher practices)
	Collaboration (sharing teachers’ work and expertise)
	Deprivatization of practice (teachers working across classrooms)
	Support for teacher influence (leadership shared with teachers)
Leadership	Shared missions and goals (common vision & clear focus for resources)
	Instructional guidance (monitoring teachers to ensure good instruction)
	Organizational change (guiding changes to policy and culture)

McREL (2005).

By focusing on the key components and subcomponents identified in this study related to instruction, school environment, professional community, and leadership in effective schools, other buildings and districts can plan and implement similar school improvement efforts that are hallmark of quality education -- regardless of need -- and systemically and systematically assuage the ill-effects of poverty and poor attendance on students' academic performance. However, none of these school-level practices will be effective until schools focus initially on assisting families in meeting students' most basic needs and consciously act to make students and their families feel valued and empowered through genuine, caring relationships. For that to occur, both students and teachers need to be physically present and emotionally connected.

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APPENDIX A. DIBELS Next Accuracy Checklists

LN Assessment Accuracy Checklist - Kindergarten

Consistently	Needs practice	
<input type="checkbox"/>	<input type="checkbox"/>	1. Position materials so that student cannot see what is being recorded?
<input type="checkbox"/>	<input type="checkbox"/>	2. State standardized directions exactly as written? <i>I am going to show you some letters. I want you to point to each letter and say its name.</i> Begin testing. <i>Start here</i> (point to the first letter at the top of the page). <i>Go this way</i> (sweep your finger across the first two rows of letters) <i>and say each letter name. Put your finger under the first letter</i> (point). <i>Ready, begin.</i>
<input type="checkbox"/>	<input type="checkbox"/>	3. Start the timer after saying <i>Begin</i> ?
<input type="checkbox"/>	<input type="checkbox"/>	4. Score student responses correctly according to the scoring rules?
<input type="checkbox"/>	<input type="checkbox"/>	5. Use reminder procedures correctly and appropriately?
<input type="checkbox"/>	<input type="checkbox"/>	6. Apply the 3-second wait rule (if the student does not name a letter after 3 seconds), slash the letter, provide the correct letter name, and point to the next letter if necessary?
<input type="checkbox"/>	<input type="checkbox"/>	7. Write "sc" above any letter that was previously slashed if the student self-corrects within 3 seconds?
<input type="checkbox"/>	<input type="checkbox"/>	8. Discontinue if the student gets a score of zero on the first row?
<input type="checkbox"/>	<input type="checkbox"/>	9. Place a bracket (]) at the 1-minute mark and say <i>Stop</i> ?
<input type="checkbox"/>	<input type="checkbox"/>	10. Correctly add the total number of correctly named letters?
<input type="checkbox"/>	<input type="checkbox"/>	11. Transfer the score correctly from the scoring page to the cover page of the scoring booklet?

Kaminski & Good (2011)

PSF Assessment Accuracy Checklist - Kindergarten

Consistently	Needs practice	Does the assessor:
<input type="checkbox"/>	<input type="checkbox"/>	1. Position materials so that student cannot see what is being recorded?
<input type="checkbox"/>	<input type="checkbox"/>	2. Read standardized directions exactly as written? <i>We are going to say the sounds in words. Listen to me say all the sounds in the word "fan." /f/ /a/ /n/. Listen to another word, (pause) "jump." /j/ /u/ /m/ /p/. Your turn. Say all the sounds in "soap."</i> Correct: <i>Very good saying all the sounds in "soap."</i> Incorrect: <i>I said "soap" so you say /s/ /o/ /a/ /p/. Your turn. Say all the sounds in "soap."</i> Begin testing. <i>I am going to say more words. I will say the word and you say all the sounds in the word.</i> (Say the first word from the list in the scoring booklet.)
<input type="checkbox"/>	<input type="checkbox"/>	3. Start the timer after saying the first word?
<input type="checkbox"/>	<input type="checkbox"/>	4. Say the next word immediately after the student responds?
<input type="checkbox"/>	<input type="checkbox"/>	5. Say the next word if the student fails to say a sound within 3 seconds?
<input type="checkbox"/>	<input type="checkbox"/>	6. Discontinue if the student gets a score of zero on the first five words?
<input type="checkbox"/>	<input type="checkbox"/>	7. Use reminder procedures correctly and appropriately?
<input type="checkbox"/>	<input type="checkbox"/>	8. Write "sc" above any correct sound segments that were previously slashed if the student self-corrects within 3 seconds?
<input type="checkbox"/>	<input type="checkbox"/>	9. Score student responses correctly according to the scoring rules?
<input type="checkbox"/>	<input type="checkbox"/>	10. Place a bracket (]) at the 1-minute mark and tell the student to stop?
<input type="checkbox"/>	<input type="checkbox"/>	11. Correctly add the number of correct sound segments for each row?
<input type="checkbox"/>	<input type="checkbox"/>	12. Correctly add the total number of sound segments?
<input type="checkbox"/>	<input type="checkbox"/>	13. Transfer the score correctly from the scoring page to the front cover of the scoring booklet?

NWF Assessment Accuracy Checklist – Kindergarten-1st Grade

Consistently	Needs practice	Does the assessor:
<input type="checkbox"/>	<input type="checkbox"/>	1. Position materials so that student cannot see what is being recorded?
<input type="checkbox"/>	<input type="checkbox"/>	2. State standardized directions exactly as written? <i>We are going to read some make-believe words. Listen. This word is "sog." (Run your finger under the word as you say it.) The sounds are /s/ /o/ /g/ (point to each letter). Your turn. Read this make-believe word (point to the word "mip"). If you can't read the whole word, tell me any sounds you know.</i> Correct ("mip"): <i>Very good reading the word "mip."</i> Correct (letter sounds): <i>Very good. /m/ /i/ /p/ (point to each letter) or "mip."</i> Incorrect: <i>Listen. /m/ /i/ /p/ or "mip."</i> (Run your finger under the word as you say it.) <i>Your turn. Read this make-believe word. (Point to the word "mip.") If you can't read the whole word, tell me any sounds you know.</i> Begin testing. <i>I would like you to read more make-believe words. Do your best reading. If you can't read the whole word, tell me any sounds you know.</i> (Place the student copy in front of the student.) <i>Put your finger under the first word. Ready, begin.</i>
<input type="checkbox"/>	<input type="checkbox"/>	3. Start the timer after saying <i>Begin</i> ?
<input type="checkbox"/>	<input type="checkbox"/>	4. Score student responses correctly according to the scoring rules?
<input type="checkbox"/>	<input type="checkbox"/>	5. Use reminder procedures correctly and appropriately?
<input type="checkbox"/>	<input type="checkbox"/>	6. Wait 3 seconds for the student to respond? If the student responds sound-by-sound, mixes sounds and words, or sounds out and recodes, allow 3 seconds, then provide the correct letter sound? If the student responds with whole words, allow 3 seconds, then provide the correct word?
<input type="checkbox"/>	<input type="checkbox"/>	7. Write "sc" above any previously slashed letter or word if the student self-corrects within 3 seconds?
<input type="checkbox"/>	<input type="checkbox"/>	8. Discontinue if the student gets a score of 0 for the first row?
<input type="checkbox"/>	<input type="checkbox"/>	9. Place a bracket (]) at the 1-minute mark and tell the student to stop?
<input type="checkbox"/>	<input type="checkbox"/>	10. Correctly add the correct letter sounds in each row?
<input type="checkbox"/>	<input type="checkbox"/>	11. Correctly add the total number of correct letter sounds and record it at the bottom of the scoring page?
<input type="checkbox"/>	<input type="checkbox"/>	12. Correctly add the correct whole words read in each row?
<input type="checkbox"/>	<input type="checkbox"/>	13. Correctly add the total number of whole words read and record it at the bottom of the scoring page?
<input type="checkbox"/>	<input type="checkbox"/>	14. Transfer both scores correctly from the scoring page to the front cover of the scoring booklet?

DORF Assessment Accuracy Checklist – First-Third Grades

Consistently	Needs practice	
<input type="checkbox"/>	<input type="checkbox"/>	1. Position materials so that student cannot see what is being recorded?
<input type="checkbox"/>	<input type="checkbox"/>	2. State standardized directions exactly as written? <i>I would like you to read a story to me. Please do your best reading. If you do not know a word, I will read the word for you. Keep reading until I say "stop." Be ready to tell me all about the story when you finish. (Place the passage in front of the student.)</i> Begin testing. <i>Put your finger under the first word</i> (point to the first word of the passage). <i>Ready, begin.</i> Begin testing (2nd and 3rd passages). <i>Now read this story to me. Please do your best reading. Ready, begin.</i>
<input type="checkbox"/>	<input type="checkbox"/>	3. Start the timer when the student reads the first word of the passage?
<input type="checkbox"/>	<input type="checkbox"/>	4. Score student responses correctly according to the scoring rules?
<input type="checkbox"/>	<input type="checkbox"/>	5. Use reminder procedures correctly and appropriately?
<input type="checkbox"/>	<input type="checkbox"/>	6. Say the word and put a slash over it if the student fails to say it correctly within 3 seconds?
<input type="checkbox"/>	<input type="checkbox"/>	7. Write "sc" above a previously slashed word if the student self-corrects within 3 seconds?
<input type="checkbox"/>	<input type="checkbox"/>	8. Discontinue if the student does not read any words correctly in the first row of the passage?
<input type="checkbox"/>	<input type="checkbox"/>	9. Place a bracket (]) after the last word the student read before the minute ran out and tell the student to stop?
<input type="checkbox"/>	<input type="checkbox"/>	10. Correctly calculate the total number of words read (correct and errors) and record it on the scoring page?
<input type="checkbox"/>	<input type="checkbox"/>	11. Correctly add the number of errors and record it on the scoring page?
<input type="checkbox"/>	<input type="checkbox"/>	12. Correctly subtract the errors from the total words and record the words correct on the scoring page?
<input type="checkbox"/>	<input type="checkbox"/>	13. Record both scores on the front cover of the scoring booklet?

Consistently
Needs practice

DORF Assessment Accuracy Checklist: Retell – Second-Third Grades

Does the assessor:

<input type="checkbox"/>	<input type="checkbox"/>	14. Administer Retell if the student read 40 or more words correct?
<input type="checkbox"/>	<input type="checkbox"/>	15. Remove the passage and then state the standardized Retell directions exactly as written? \
		<i>Now tell me as much as you can about the story you just read. Ready, begin.</i>
<input type="checkbox"/>	<input type="checkbox"/>	16. Start the stopwatch after saying <i>Begin</i> ?
<input type="checkbox"/>	<input type="checkbox"/>	17. Use reminder procedures correctly and appropriately?
<input type="checkbox"/>	<input type="checkbox"/>	18. Mark the number or words in the student's response and circle the total number of words?
<input type="checkbox"/>	<input type="checkbox"/>	19. Tell the student to stop if he/she is still retelling at the end of one minute?
<input type="checkbox"/>	<input type="checkbox"/>	20. Record the number of correct words at the bottom of the scoring booklet?
<input type="checkbox"/>	<input type="checkbox"/>	21. Record the score on the front cover of the scoring booklet?

Kaminski & Good (2011)

Daze Assessment Accuracy Checklist – Third Grade

Consistently	Needs practice	
<input type="checkbox"/>	<input type="checkbox"/>	1. Make sure each student has the appropriate worksheet?
<input type="checkbox"/>	<input type="checkbox"/>	2. State standardized directions exactly as written? <i>I am going to give you a worksheet. When you get your worksheet, please write your name at the top and put your pencil down.</i> <i>You are going to read a story with some missing words. For each missing word there will be a box with three words. Circle the word that makes the most sense in the story. Look at Practice 1.</i> <i>Listen. After playing in the dirt, Sam went (pause) home, summer, was (pause) to wash her hands. You should circle the word "home" because "home" makes the most sense in the story. Listen. After playing in the dirt, Sam went <u>home</u> to wash her hands.</i> <i>Now it is your turn. Read Practice 2 <u>silently</u>. When you come to a box, read all the words in the box and circle the word that makes the most sense in the story. When you are done, put your pencil down.</i> <i>After 30 seconds: Listen. On her way home, she (pause) chair, sleep, saw (pause) an ice cream truck. You should have circled "saw" because "saw" makes the most sense in the story. Listen. On her way home, she <u>saw</u> an ice cream truck.</i> <i>When I say "begin," turn the page over and start reading the story silently. When you come to a box, read all the words in the box and circle the word that makes the most sense in the story. Ready? Begin.</i>
<input type="checkbox"/>	<input type="checkbox"/>	3. Start the timer after saying <i>Begin</i> ?
<input type="checkbox"/>	<input type="checkbox"/>	4. Use reminder procedures correctly and appropriately?
<input type="checkbox"/>	<input type="checkbox"/>	5. Say <i>Stop, Put your pencils down</i> at the end of 3 minutes?
<input type="checkbox"/>	<input type="checkbox"/>	6. Use the scoring key correctly?
<input type="checkbox"/>	<input type="checkbox"/>	7. Add the number of correct and incorrect responses accurately?
<input type="checkbox"/>	<input type="checkbox"/>	8. Write the total number of correct responses on the "C" line of the worksheet cover page?
<input type="checkbox"/>	<input type="checkbox"/>	9. Write the total number of incorrect responses on the "I" line of the worksheet cover page?